THIS WEEK'S National Petroleum NEWS

Coming Meetings

Third Annual Oil Equipment and Engineering Exposition, Los Angeles, March 21 to 27.

American Association of Petroleum Geologists, Oklahoma City, Okla., March 24, 25, 26.

Michigan Oil Men's Association, Statler Hotel, Detroit, March 23, 24, 25.

American Chemical Society, New Orleans, La., March 28 to April 1.

Natural Gasoline Association's plant operators' meeting, Ranger, Tex., March 29.

Western Petroleum Refiners Association, Elms Hotel, Excelsior Springs, Mo., April 6, 7, 8.

National Independent Oil Association, Statler Hotel, St. Louis, Mo., April 11, 12.

American Oil Burner Association, Mechanics Bldg., Boston, Mass., April 11 to 16.

National Petroleum Association, Hotel Cleveland, Cleveland, O., April 21, 22.

Petroleum Industry Electrical Association, Baker Hotel, Dallas, Tex., April 22, 23, 24.

American Chemical Society, Petroleum and other Divisions, Coronado Hotel, St. Louis, Mo., May 5, 6, 7.

Natural Gasoline Association of America, Mayo Hotel, Tulsa, Okla., *May 17, 18, 19.

American Petroleum Institute, Mid-Year Divisional Meetings, Mayo Hotel, Tulsa, June 1, 2, 3.

*Correct dates of this meeting are May 17 to 19, rather than May 9 to 11 as published since the March 2 issue.

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General

Uneconomic Marketing Reflected in 1931 Earnings Report 11
Gulf Companies Report Net Loss of $23,658,865 for 1931 12
More Letters on the "Dumping" Editorial 14
Disorderly Markets and Low Prices Cause Skelly Oil Co. Loss 15
Crude Market Tight in Some Mid-Continent Fields 16
Difficulties in Assessing Tax on Lubricants Brought Out 17
Lease and Employment Contract Upheld in Michigan Court 19
Third Tanker of Roumanian "Gas" on the Way to Detroit 20
Review of Late Production News 21
Texas Commission to Write New Proration Orders 23
Halt Gas Law Litigation Pending Sharkey Bill Election 24
Battle of Injunctions in East Texas Has Been a Draw, to Date 25
Drilling at Low Ebb in All Fields Except East Texas 26
A.P.I. Report of Refinery Operations, Week Ended Mar. 19 49

Merchandising

200 Marketers in Nine States Sell Under "Dixie" Brand Name 43
Merchandising and Jobbing Ideas Marketers are Using 47
Crank Case Cleaning Offers New Field for Station Profits 48

Engineering

Laboratory Vacuum Distillation Unit for Lubricating Oil Study—*by Boyd Guthrie and Ralph Higgins* 27
Rigorous Tests Being Given Diesel Engine in Truck Chassis 39
Gas, Oil Consumptions Vary with Speed, Tests Show 42
New Refining Patents 60

Markets

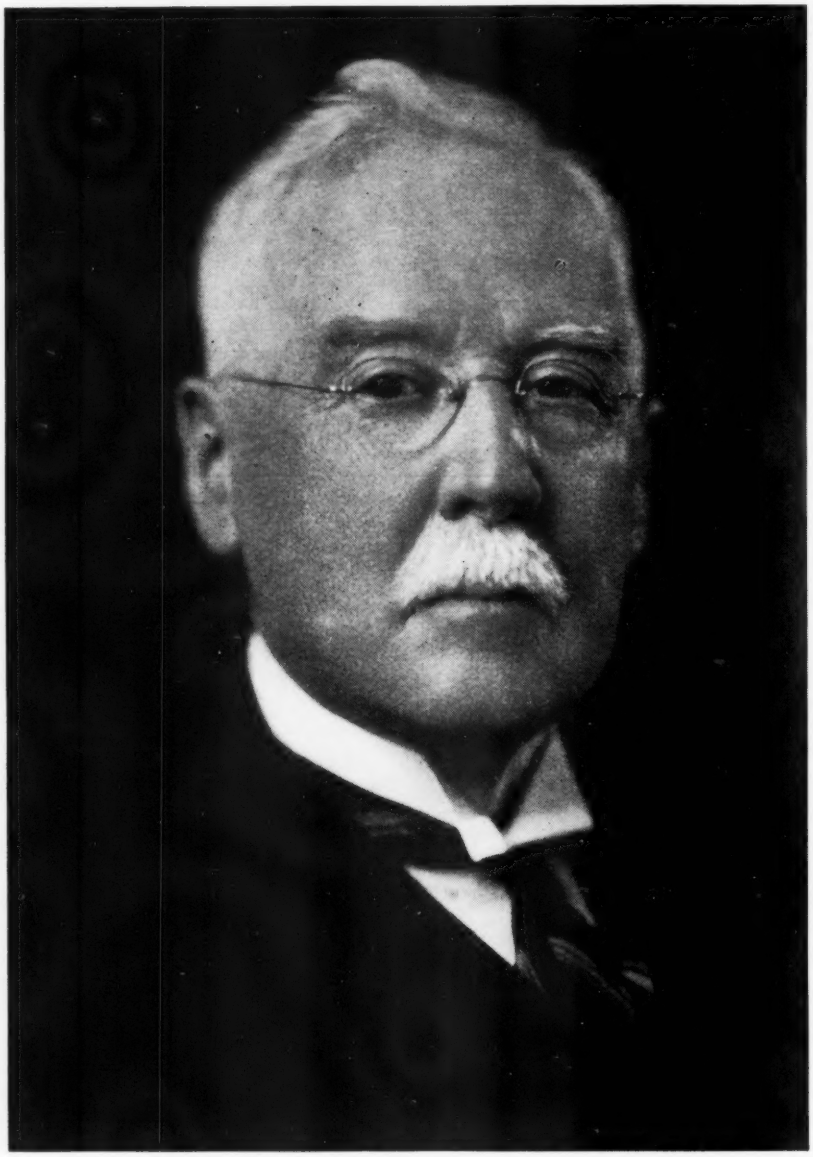
Chicago, Gasoline Price Rise Halted 53
Mid-Continent, Gasoline Prices Hold Ground Gained 55
Refinery Price Tables 56, 58, 59
California, Foreign Buyers Inquire for Small Lots 62
Pennsylvania, Trading Generally Quiet 63
Eastern, Gasoline Markets Generally Steady 64
Gulf, U. K. Buyers Take 9 Cargoes of Bunker Oil 64
Wax, Trading Slow 64
Complete Seaboard Prices 66
Tank Wagon Price Tables 68, 69
Aviation Gasoline Prices 69
Crude Oil Prices, All Fields 71, 73

Departments

The Editors' Viewpoint 13
New Stations Building 46
New Books 51
New Refining Patents 60
On the Lazy Bench 65
Oil Trademarks for Copyright 70
New Patents 72
Oil Company Finance 74, 75, 76, 78
New Equipment 79

Hauling by Truck Train

REFINERS and other agencies in the Pennsylvania refining district have been doing considerable bulk hauling of their products by truck trains, consisting of tractor, semi-trailer and trailer, or tank truck and trailer, with total carrying capacities of up to 6000 gallons. These operate direct from refinery loading to service station or bulk station storage. In some cases back hauls from refineries of unfinished stocks have been figured out. The Special March 30th issue of NATIONAL PETROLEUM NEWS goes into detail into this oil transportation method.



VERY few executives in the oil industry, or any other line of business for that matter, can point to a record of 45 active years with one concern. What changes Louis Carruth, president of the Canfield Oil Co., has seen since he came to that company as a salesman back in 1887!

In 1891 the other active partner with George R. Canfield in the company withdrew and Mr. Carruth entered into active participation in the business, which he has not relinquished to date. At Mr. Canfield's death in 1920 Mr. Carruth succeeded to the presidency.

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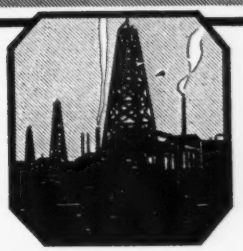

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Uneconomic Marketing Reflected In 1931 Earnings Reports

By Roger B. Stafford
N. P. N. STAFF WRITER

CLEVELAND, March 21

THE oil industry's chickens—failure to heed evident economic facts, over-production, poor marketing policies—came home to roost in 1931, the latest batch of 1931 income reports of the larger oil companies indicate.

Low prices are emphasized in most of the statements of company executives as the cause of their companies' unprofitable operations last year. Yet the volume business in the industry's principal product, gasoline, was larger in the domestic field than ever before. The export business slumped, but relatively few companies are engaged in export trade of considerable size.

The Code of Practices for the Marketing of Refined Petroleum Products, the formal name of the code of ethics, aided in eliminating or reducing some unprofitable practices of past years but practices not specifically prohibited under the code flourished and kept cost of distributing gasoline at a high level in many parts of the United States.

Among the evils which were not abolished in 1931 were wide margins between tank car and service station prices of motor fuel, abuse of commercial discounts, the granting of retail credits promiscuously, and the wide use of lease and agency agreements as a means of supplying dealers with equipment, otherwise prohibited under the code.

The wide margins between the tank car and service station prices of gasoline in several marketing areas brought a great deal of unneeded new competition into the gasoline distributing business. The number of new distributors in many marketing areas was in excess of the new gasoline business available in those areas. Gallonage of companies already in the field was diluted by the new competition. Cost of distributing gasoline was increased because there was little shrinkage in the overhead expense of the older companies.

Some savings in overhead were effected by progressive companies who were the bystander victims in the failure of other companies to recognize economic facts. The latter group appeared blind to the fact that pushing more products into a market than the market could profitably absorb, meant only that prices would be reduced to a point where sales would have to be recorded in red ink.

Commercial discount privileges have been abused by the larger oil companies in some areas to the extent that marketers have asserted only suckers and transients pay the posted prices. Theoretically there is reason for the granting of discounts to wholesale quantity consumers. The code of ethics provides that discounts may be granted to commercial car operators when they sign a contract for their supply. There has been no strict adherence to this provision in most of the territories where commercial discounts are given at service stations. The doors of discount privilege have been thrown wide open. All the employes, aunts, uncles, cousins and casual acquaintances have been let in on the discounts until in some communities posted service station prices are mere fictions.

TELEPHONE directories, city directories, automobile registration lists, club membership rosters, and other collections of names have been used as mailing lists for retail credit courtesy cards in some marketing areas. The granting of retail credits has added 1.5 cents a

gallon to the cost of gasoline sold on this basis, in the experience of some companies.

One company, operating in several eastern states, added 100 persons to its clerical force when competition forced it to indulge in the retail credit orgy. New business added was not proportionate to the greatly increased expense of keeping records of charges and collections, loss of interest on slow collections, and writing off bad debts.

Credit facilities perhaps kept up the consumption of gasoline by enabling operation of automobiles that might otherwise have been kept in their garages. But at what price! When the car owner drives a car when he is unable to pay for the fuel, he is a poor credit risk. He usually adds to the volume of uncollectable debts. Gasoline, once it passes through an automobile engine, cannot be replevined.

Some refiners are still blind to the fact that dumping has a powerful recoil. If they dump gasoline into a territory where it causes unprofitable prices these refiners do not seem to realize that refiners whose gallonage has been reduced by that dumping will probably dump their accumulated stocks in other territories where they believe it will have the least serious effect upon their own market structures.

The ignored warnings of the economists brought about the manufacture of too much gasoline during seasons of low consumption.

Marketers who have not indulged in the fancy schemes to increase their individual gallonages at the expense of fellow marketers, were able to earn a profit in 1931, earnings statements show. True the profits were not so large as in boom years.

The industry has an index to the throughput of crude oil at refineries. It knows the average volume of gasoline recovered from that throughput. It knows the volume of gasoline stocks in the whole country within four days of the time inventories are taken. The gasoline tax statistics give it the trend in demand for automobile use. The Bureau of Mines monthly statistics give the trend in total demand. The figures need only to be applied to marketing policies.

Already companies that have been the worst offenders in the application of unsound policies have undertaken retrenchment activities. There has been pressure from stockholders who ask why an increase in volume of business has been accompanied by deficits. It is difficult to make stockholders believe that overproduction of crude oil is wholly to blame, even though they may not know that crude oil consumption in the United States actually exceeded production in 1931.

Gulf Companies Report Net Loss Of $23,658,865 for 1931

CLEVELAND, March 22. GULF Oil group reports net loss of $23,658,865.16 in 1931. This includes a write-down of oil inventories amounting to $11,958,086.43. In 1930 the Gulf group had a net profit of $10,625,252.28, or $2.35 a share on 4,525,221 shares of $25 par capital stock.

W. L. Mellon, chairman, and J. F. Drake, president, report that profits were earned in each month of the fourth quarter of 1931 which offset losses in the third quarter. The net loss for the year, therefore, was sustained in the first six months.

Receipts from sales of gasoline by Gulf companies fell $26,166,100, or 21 per cent, from the receipts in 1930, the officers report, although volume of sales was 4 per cent larger than in 1931. The gain in total domestic demand in 1931 was 2.19 per cent, the Bureau of Mines shipments report indicates.

Curtailment of crude oil production, together with low prices, caused a fall of $15,758,000 in Gulf's gross receipts from crude oil. Smaller demand and lower prices for fuel and gas oils caused a slump of $8,650,000. Decline in prices of kerosine, lubricating oils and other products caused the $568,100 remainder of the $51,142,200 slump in gross operating income in 1931.

One cause of decreased income, the company's officers stated, was the high gasoline taxes. Gulf collected a total of $37,287,115.78 in gasoline taxes last year, compared with $31,587,988.27 in 1930, 18 per cent increase. The taxes, it was pointed out, constituted a direct sales equivalent of 27 per cent of the total amount charged to Gulf customers for gasoline and tax, or 37 per cent of the price accruing to the Gulf companies.

Gross crude production of Gulf companies in 1931 was 65,125,604 barrels and net production accruing to Gulf was

(*Continued on page* 15)

Consolidated Income Accounts of Gulf Companies

	1931	1930
Gross operating income	$196,057,450.76	$257,199,650.45
Costs, operating, general expenses	127,061,942.03	153,745,916.09
Decline in oil inventory values	11,958,086.43	17,149,985.59
Gasoline taxes—assessed*	28,301,673.78	24,190,752.19
Other taxes	6,407,413.06	6,256,847.15
Operating income	$ 22,328,335.46	$ 55,856,149.43
Intangible development costs	4,653,771.59	8,785,386.76
Depletion, depreciation, retirements	37,886,588.44	36,299,314.68
Net operating loss	$ 20,212,024.57	†$ 10,771,447.99
Non-Operating income	3,633,772.62	5,236,354.06
Loss	$ 16,578,251.95	†$ 16,007,802.05
Interest and discounts	7,080,613.21	5,358,467.84
Profit applicable to minority interests	11,186.27	24,081.93
Loss for year	$ 23,670,052.03	†$ 10,625,252.28

*Also collected for states $7,397,236.08, making total gasoline taxes paid states $37,287,115.78 in 1931. In 1930 total was $31,587,988.27.
†Income or profit.

THE EDITORS' VIEWPOINT

The Sellers' Role in "Chiseling"

By Warren C. Platt,
Editor

WHAT'S wrong with prices generally is not just "chiseling" by the buyer, but also an absolute lack of courage and intelligence on the part of the seller and his sales force.

The stories one hears these days of poor selling are scandalous and unbelievable. Sales people seem to be in a panic. They will give away anything they have. They will hear of low prices when there is not a competitor in a mile.

Just as a buyer thinks he has gotten bottom prices—and gotten them too in a perfectly gentlemanly way—in will rush a flood of salesmen and submit new low prices that were never asked for nor expected.

Hard buying and chiseling had something to do with all this, but it has gone way beyond any buyer's expectations.

Oil companies are guilty of all this just as much as are any manufacturers. Oil companies have wobbled terribly in their prices, both tank car and to the consumer; perfectly ridiculous margins have been granted on contracts for most foolish periods of time. Courtesy cards are a part of the whole mess—all the lack of backbone and clear thinking and the result of senseless fear.

C. R. Walmsley, president of the Leader Iron Works, sends in the most unbelievable story so far on poor selling and no backbone on prices. When our first editorial against chiseling was printed, Mr. Walmsley sent it to his men together with announcement of a 5 per cent increase in his prices, based upon an increase in the price of steel and the need to make profits. He writes:

"Going back to your article 'Chiseling.' I thought it was fine—this is attested to by the attached letter sent to our sales staff.

"A copy of the attached letter was sent to a number of our larger customers, after which I personally contacted them for their reaction.

"REVEALED:—Typical Case—A general purchasing agent for one of the larger companies sent out inquiries on certain items of equipment to eight firms; six quoted—approximate total price $38,000. Inquiry specified a certain closing date. The day following closing date five of the six bidders were represented by salesmen. Two of the five immediately tendered cuts from original price. Two stated that, if it was not too late, they wanted to take up with headquarters about getting a better price. The fifth 'stood pat.' The buyer informed the two who wanted to take up with headquarters that the matter would be held up several days. The facts of the matter were the buyer was awaiting word from the executive committee to proceed. Within six hours the second two bidders had also tendered revised downward price.

"RESULT:—The approval from the executive committee was not forthcoming for five days. By that time two of the four revisers had again cut their price. Net result was the $38,000 job was purchased for $26,000. The only pressure from the buyer was sitting still, awaiting word from the executive committee to go ahead.

"CONCLUSION:—The above case and other contacts reveal that 'Chiseling' is not a one-sided act. Sellers as well as the buyers are 'Chiselers.'

"This 'Chiseling,' however, by either purchaser or seller, is serious and leads to what?

"Following is copy of a bulletin which is accompanying all quotations going out of this office.

'Where Will It Stop?'

" 'The prices given you in this quotation are figured to return us a fair margin of profit.

" 'While this profit is not great, it is sufficient, in these times, to enable us to maintain a standard of manufacturing on which our business was built and to return to our employes a living.

" 'You may receive other quotations of prices lower than these. They may be so low as to indicate downright distress.

" 'We do not mean to infer that everyone underquoting us must or will resort to skimping but there is a tendency—a very natural one—to try and make a profit, even though the price at which the article was sold was not sufficient to yield one.

" 'If the practice of buying which precludes any possibility of a fair profit to the manufacturer is not stopped, standards and quality, out of necessity, must tumble.' "

More Letters on the "Dumping" Editorial

After the Surplus Is Dumped

Dear Mr. Platt:

In your article of Feb. 24 headed, "When a Refiner Dumps A Surplus," you should explain more fully how it affects the consumers of "Dumped Surplus," then broadcast that message to every user of gasoline and motor oils in the United States.

In the last seven years of selling for a large major company I have seen the cut price operator come to the front and take the cream of the business with "I'll give you one cent off," but now these resellers of "Dumped Surplus" will go as far as 3 to 3½ cents discount. Not content to stop at price cutting they take advantage of the red color in some gasolines denoting a premium product by mixing analin red with their "Dumped Surplus" thereby getting another cent or two more for the home manufactured gasoline and still underselling regular premium gasoline.

There is still another way for Mr. Cut Price to dig the consumer with "Dumped Surplus." Today a major company salesman sells Mr. Cut Price a barrel or more of his premium motor oil. In about a week Mr. Cut Price has sold all of the oil, usually ten cents a quart below posted price of the advertised brand. Then the barrel is filled with "Dumped Surplus" and the small loss is soon overcome with a large profit, and Mr. Cut Price just sits back and laughs at how National Advertising is selling his cheap oil, since no reliable check is being made on him by the major companies.

I have spent almost a full year studying the operation of cut price stations and have proof for every statement made in the above paragraphs.

In closing I want to compliment you on your nerve and ability to tell where the telling may do some real good.

Very truly yours,

Salesman

* * *

Cannot Control Refiner's Price

Dear Sir:

We have read with interest your viewpoint on sales to brokers, particularly the issue of Feb. 24, 1932, page 13, also previous articles.

To begin with, we are brokers, jobbers, marketers, refiners agents, etc., and can classify as such financially and otherwise based on past and present performance.

Doubtlessly you have never considered that a broker cannot make or control a refiner's price on any commodity without his consent, neither can the broker maintain prices which seem to be uniform when refiners of all description are promiscuously quoting through ambitious salesmen, and making special deals.

Our records indicate a broker can dispose of products more economically than a major refiner who now has, and in most instances will not avoid, the present exorbitant marketing costs.

The same applies to the small refiners who cannot afford, nor will they assume, these exorbitant marketing costs.

Now in all fairness to brokers, (legitimate), and by that I mean those maintaining offices, (not under their hat), paying their bills, extending credit and numerous other facilities, don't you think you are covering a lot of territory in endeavoring to imply or advocate the elimination of brokers who perform a service to the industry, which, to our way of thinking, rivals yours?

The writer has subscribed to your magazine for the past ten or twelve years, and can readily appreciate the editor's viewpoint, particularly when he is dependent on a particular source for his revenue and patronage.

Article of L. P. St. Clair, president of the Union Oil Co., appearing in this morning's Examiner is enclosed. Apparently he like ourselves is open to suggestions for the most feasible way of making our money work successfully in the oil business. Generally the refining business has not been very prosperous, and militia, state legislation, etc. prohibits the individual or small operator from producing oil on his own property (water wells permissible).

Since we are convinced we have considerable knowledge of producing, refining and particularly the marketing conditions on the Coast, sufficient working capital, what would be your constructive suggestion regarding the business we reenter?

Henry H. Cross Co. of California

Los Angeles, Calif.

Davis Peters, Vice President.

* * *

(Following is the clipping enclosed by Mr. Peters)

St. Clair declared that it just seemed as if nobody could solve the marketing game, that the oilmen were open to suggestions from anyone on that score and that it looked to him now as if the only way would be to take the sales departments of all the companies and send them away on a trip around the world.

Work Against Own Dealers

Dear Sir:

I have been reading your editorial and comments you have received since, regarding your "When the Refiners Dump a Surplus." I look at the situation from the angle of a carload buyer service station and will say that the companies had better clean house themselves if they want the industry helped to any great extent.

Brokers are necessary to a certain degree, but my opinion is that they are willing to work on a smaller margin of profit by keeping their overhead expense low, possibly they are like men of our class who do not have so many office men with their feet on top of the desk passing the buck around shunting the responsibility to some one else for the dirty tactics as they call it in the industry, for the last few days it has been a battle for gallonage among the companies.

It has put me in mind of the story of one man saying to another would he take the world if he would give it to him. Yes, he said he would if he would put a fence around it and plow it up and plant the middle to potatoes for him.

Why is one man's money any better than another's? Why do the companies truck this gasoline out to the farmers over all creation, bucket it out from five gallons on up, wait thirty, sixty, or ninety days on their money, at the same price their dealers have to pay them cash at times of dumping.

If that isn't poor business and working directly against their dealers, I would like to know what it is. Then if a bulk service station man bought from a broker and was willing to sell a cent under them and work on a little shorter margin of profit they raise the devil and call him a price cutter, when at the same time the companies are supplying a curb dealer, give him pumps and equipment and he cuts the price secretly, why that is all right.

When the companies get the pumps away from the curb and stop running here there and yon to get rid of a little measly five gallon of gasoline, or a little bigger dump, then the industry will improve.

The small independent dealer wants to make money just the same as anybody else, but we don't care about the big boys trying to make us the goat.

Very truly yours,

Faze Service Station,

W. P. Faze, Assistant Manager.

Bluffton, Ohio.

Gulf Report

(*Continued from page* 12)

54,889,714 barrels, daily average of 150,383 barrels, compared with net of 64,163,653 barrels, a daily average of 175,790, in 1930. The decrease was due to proration, the officers stated.

Earnings of the production subsidiaries in the United States were affected materially by the proration, because the restriction in production was not attended by a decline in overhead expense, it was pointed out. It also was necessary to drill wells in order to get the necessary crude supply.

Besides writing down the value of the crude and refined oil inventory, the company reduced its holdings of oil 2,875,769 barrels. Crude oil stocks were reduced 5,928,328 barrels but stocks of finished oils increased 3,052,559 barrels. The value of the manufactured oils decreased, however, it was stated.

The group spent approximately $34,050,000 for plant improvement and additions. This sum was divided as follows with expenditures for comparable projects in 1930:

	1931	1930
Production division	$8,000,000	$16,115,497
Pipe lines	4,000,000	13,493,964
Refinery completion and improvement	12,770,000	27,767,150
Marketing facilities	8,623,000	22,220,195
Marine equipment, miscellaneous	621,800	2,964,150

The last four years the Gulf companies have spent $242,510,000 on improvements and expansion. Gulf carries its total plant investment at $596,196,804, against which has been set up depletion and depreciation reserves totaling $291,133,712. Development of production properties is charged to current expense. The net value of the properties as carried on the books is 51 per cent of the original costs.

Total assets Dec. 31, 1931, before depreciation and depletion were $743,871,135, compared with $761,575,906 at the end of 1930.

Current assets Dec. 31, 1931, totaled $113,389,868.18, including $13,750,859.15 cash. Current liabilities were $15,331,132.03. At the end of 1930 current assets were $140,748,482.10 and current liabilities $19,895,403.16.

Funded indebtedness at the end of 1931 was $125,559,391.22, a small reduction for the year. Earned surplus at the end of 1931 was $178,570,193.29, compared with $210,016,214.39 at the end of 1930.

Disorderly Markets and Low Prices Cause Skelly Oil Co. Loss

CLEVELAND, March 22

LOW prices, coupled with what W. G. Skelly calls reckless and disorderly drilling, producing and marketing that attended the development of the East Texas field, brought a loss of $2,117,110 to the Skelly Oil Co. in 1931. In 1930 this company had a net profit of $1,916,872.

Skelly performed several major operations on its financial structure in 1931 to place its house in order for future profitable operations. It removed $14,122,326 from its property valuations. The surplus of $11,152,705.71 at the beginning of the year turned up Dec. 31 as a profit and loss deficit of $5,086,730.20.

Besides a payment of $179,700 preferred stock dividends to April 30, here are the items that went into the more than $14,000,000: Adjustment of reserves against cost of properties, actually a property value write-off, $9,272,616.49; charge-off against subsidiary company and divisional development costs and losses, $2,053,019.14; allowance for contingencies, $1,000,000; goodwill charge-off, $979,177.29; other surplus adjustments, $637,812.96, and the year's loss.

A summary of the company's production and volume sales the last two years follows:

	1931	1930
Net crude produced, bbls.	5,316,811	6,321,904
Gasoline output, gals.	179,775,671	188,267,369
Lubricating oils, gals.	2,973,669	3,781,034
Products sold through own stations, gals.	50,481,899	53,845,517

The average price received for its crude oil was 59 cents at the well, compared with $1.14 in 1930, and $1.20 in 1929. The average price received for gasoline at the refinery was 3.8 cents a gallon, compared with 6.4 cents in 1930 and 7.6 cents in 1929. Gross earnings fell one third to $18,161,519.96.

Skelly's balance sheet Dec. 31 shows current assets totaling $9,695,448.37, including $4,440,843.25 cash and oil inventory of $2,395,823.20. Its current liabilities totaled $2,084,754.89, making current ratio 4.6 to 1. At the end of 1930 its current assets totaled $8,853,731.13, including $2,639,715.50 cash. Its oil and merchandise inventory at the end of 1930 amounted to $3,114,078.41.

Consolidated Income Accounts of Skelly Oil Co. and Subsidiaries

	1931	1930
Gross earnings from operation	$18,161,519.96	$27,212,595.83
Operating, administrative expense, etc.	13,419,331.85	18,061,196.75
Net income from operations	$ 4,742,188.11	$ 9,151,399.08
Interest	841,211.56	980,547.65
Depletion, depreciation, other capital extinguishments	7,547,316.22	6,253,979.82
Loss before profit for sale of sundry properties	$ 3,168,549.54	*$ 1,916,871.61
Profit from sale of sundry properties	1,051,439.51	.....
Net loss for year	$ 2,117,110.03	*$ 1,916,871.61

*Income or profit.

Outstanding long term indebtedness amounted to $12,030,242.11 Dec. 31, including $11,912,000 of 5½ per cent debentures not maturing until March 1, 1939.

Total assets at the end of 1931 were $50,115,675.53, after reserves for depletion and depreciation which amounted to $51,665,725.84. These reserves were more than $12,000,000 greater than at the end of 1930, although only $7,547,316.22 was charged against current income.

Concerning the current standing of the company after the adjustments Mr. Skelly said in his annual report:

"On the revised basis, allowing fully at face or par value for the 5½ per cent gold debentures and the preferred stock, and for the accrued but undeclared dividends on the preferred stock since May 1, 1931, the common shares have a book value of over $19 each, based on residual costs of property as now written down.

"In making increased provision for depletion and depreciation reserves and correspondingly reducing residual or unextinguished property costs, the engineering estimate of future oil recovery from producing leases, used as a factor in calculating the revision, is limited strictly to the expectancy of recovery from present wells. The undrilled portions of present producing leases are not within that estimate and are therefore left in effect uncapitalized on our balance sheet, notwithstanding the further estimate of our engineers that 41,000,000 barrels of net company crude oil, now resting in its natural reservoirs, will be produced in future from these undrilled portions."

The company has 315 producing properties with 1200 wells at the end of 1931. A year before it had 320 properties with 1273 wells.

Skelly sold in 1931 its interest in the natural gas pipeline from the Texas Panhandle to Chicago. It has an interest in the Great Lakes gasoline pipeline through which it is moving a substantial share of the gasoline produced at its El Dorado, Kans., refinery.

Crude Market Tight in Some Mid-Continent Fields

By Telegraph
TULSA, March 22

A GROWING campaign for crude oil on the part of several refiners in Oklahoma and Texas, together with consistent betterment in the refinery gasoline market over a period of weeks, has led to a feeling that producers will be rewarded, by stronger crude markets, for their many months of heroic restraint of production.

There is also a feeling that a beginning of impetus in the gasoline market is at hand, which will give the refining companies an opportunity to shake off the lethargy of profitless operations of the past few months.

While tangible evidence is limited to the solicitation for crude, the prediction is justified that an advance in the posted price of crude is not unlikely.

It is generally realized that recent court decisions in Texas have strengthened the authority of the Texas Railroad Commission and that actual progress has been made in East Texas in stopping outright thefts of oil through secret connections. This, together with the evident determination of the commission to exert fully its authority to prevent physical waste, tends to make for a tight crude situation there.

Oklahoma's control of crude production was never on a firmer basis and the same condition applies to prorated areas in other states.

Leadership in breaking the deadlock of below-cost prices is looked for any day. From what source it will come is anybody's guess now; but the demand for crude in what is in some areas a tight situation is certain to force the issue.

The present situation may be looked upon as one of firm demand for a raw material which is not scarce as to reserves; but which is so thoroughly restricted by state authorities on the grounds of ratable taking and prevention of waste that a price increase alone will serve to bring from the pools the increase in supply necessary to meet seasonal gains in consumption.

If an increase in the posted price of crude is forthcoming, it is not expected to be great enough to encourage drilling campaigns; but sufficient to cause producers, who have through the period of low prices insisted upon rigid proration, to consent to orders of the state commissions permitting slightly greater output in the areas where the oil is needed.

Plan Gas Line to Connect With San Diego System

LOS ANGELES, Mar. 18.—Natural gas service for San Diego and its surrounding territory is scheduled to be in effect before next September, according to plans announced in California the past week. As a result of successful negotiations between San Diego Gas and Electric Co. and Southern Counties Gas Co., work on a 12-inch pipeline from the Los Angeles Basin fields to La Jolla, north limit of the present San Diego system, will be started early in April.

The project is expected to cost about $1,000,000 and is schedduled to be completed early in September. The new line will be laid from Huntington Beach to La Jolla, approximately 80 miles. It is understood the contract price on gas, delivered at La Jolla, is 25 cents per 1000 cubic feet.

Natural gas production from Los Angeles Basin fields has shown a rapid decline during the past year and it is anticipated that peak consumption loads in the future will have to be supplied from either the Ventura Avenue field on the coast, or from the Kettleman and Buttonwillow area in the San Joaquin Valley.

Difficulties in Assessing Tax On Lubricants Brought Out

WASHINGTON, March 19

THE proposed tax of one cent a gallon on imports of crude oil and products, and that of four cents a gallon on domestic and imported lubricating oils, have not yet come in for particular attention from the floor of the House. The attack has been centered on the provision for a manufacturers' excise tax of 2.25 per cent, in the billion dollar revenue bill.

The provision for the tax on oil imports seems to maintain strong support, despite criticism of opponents that what amounts to an import duty is being put into an internal revenue bill; and that such an excise tax will cost American consumers of petroleum products from $300,000,000 to $500,000,000 a year.

"The Standard Oil is fighting hard to avoid accepting half a billion dollars if the incredible propaganda of the oil importers who are fighting an excise tax on foreign oil could be believed," said Rep. Disney, a Democrat from Oklahoma. This was in answer to propaganda put out under the name of the Public Protective League, an organization unknown to newspapermen and congressmen in Washington. Both those members of the House for and against the manufacturers' tax of 2.25 per cent have expressed themselves as in favor of the tax on oil imports, and it now seems likely that this provision will be in the bill when it leaves the House and goes to the Senate.

Not a word has been said concerning the proposed tax of four cents a gallon on lubricating oil in the debate in the House. Study is being given a memorandum on this subject prepared by the American Petroleum Institute and addressed to the House Ways and Means Committee.

Estimates of revenue under this provision range from $25,000,000 to $35,000,000, based upon 1931 lubricating oil consumption estimated by the U. S. Bureau of Mines, the institute memorandum points out.

However, it goes on, if the explanation of Rep. Crisp, of the Ways and Means Committee holds true, that manufacturers, under the licensing provision will not pay a tax on the lubricating oils they use, since they are used in the process of manufacture, then the revenue to be derived from a tax on lubricating oil would be more nearly $7,000,000.

On the basis of 1931 industrial conditions, the institute memorandum states, of total lubricating oil consumption, 47 per cent was used for industrial machinery lubrication; 26 per cent was used to lubricate automotive equipment belonging to industries engaged in either manufacture, automotive transportation or some other form of commercial endeavor which, under Rep. Crisp's interpretation, would likely be exempt from provisions of the tax, along with oils used for lubricating industrial machinery. This estimate would leave 27 per cent for automotive retail lubrication.

On the basis of domestic consumption of lubricating oils for 1931 of 842,520,000 gallons, estimated by the Bureau of Mines, of which it is further estimated that 20,000,000 gallons are used in the manufacture of greases, the consumption by these three classes would be:

Industrial machinery lubrication, 47 per cent, 385,635,000 gallons.

Industrial automotive equipment lubrication, 26 per cent, 213,330,000 gallons.

Automotive retail equipment lubrication, 27 per cent, 221,535,000 gallons.

"The sum of the two latter figures, which equals 434,865,000 gallons, checks well with the National Automobile Chamber of Commerce estimated automotive consumption of 432,600,000 gallons," said the institute memorandum.

"The tax on the 221,535,000 gallons used for the lubrication of automotive retail equipment, at the 4-cent rate, would theoretically be $8,861,400."

Motor oils used by federal, state and other governmental agencies, and other exemptions, would likely bring the revenue down to $7,361,000 for a year, it is estimated.

If the provisions of the tax are applied equally to all lubricating oils within the classifications indicated in the bill, grades designated by Society of Automotive Engineers viscosity numbers 20 to 70, about 64 per cent of total consumption, or 525,000,000 gallons approximately, will be liable to tax, at 4 cents a gallon, which would produce a revenue of only $21,000,000, the institute memorandum goes on to state.

Included in this amount would be 19 per cent, or about 100,000,000 gallons, brought into taxable range by blending operations on non-taxable oils, which could be sold without payment of the tax, reducing the tax revenue to $17,000,000. Other exemptions, the institute estimates, would reduce the total subject to tax, under this analysis of the provisions of the bill, to about 387,500,000 gallons, producing a tax revenue of $15,500,000.

The institute memorandum goes on to point out that the proposed tax of 4 cents a gallon

Oil and Automotive Bears 11 Per Cent

WASHINGTON, March 19. —Petroleum products and automotive equipment will pay about 11 per cent of the taxes proposed in the billion dollar revenue bill, the American Automobile Association has figured out.

The total of $117,000,000 is made up as follows: manufacturers' tax of 2.25 per cent on gasoline, $39,000,000; excise tax of 4 cents a gallon on lubricants, $25,000,000; excise tax on oil imports, $5,000,000; manufacturers' tax on passenger cars, trucks, accessories and parts, $48,000,000.

on lubricating oil would increase the cost of a 55-gallon barrel of oil $2.20. "This will in many instances equal the full wholesale price of the industrial oil and will amount to 30, 40 or 50 per cent of the cost price to the manufacturer or industrial user," it brings out.

Since the bill exempts all manufacturers doing less than $20,000 business per year the institute points this out as a tax leak of large proportions. It says that the law would encourage the competitive building of large number of small plants which could buy tax oils outside the taxable viscosities and blend them. It is roughly estimated that $500,000 in tax would be lost in that manner.

It also states there is an almost insurmountable difficulty in taxing lubricating oils because they cannot be defined adequately except in terms involving their use. Oils which may be used for lubrication are also used for transformer oils, electric switch oils, heating mediums, quenching oils for steel etc., leather oils for preparation of hides, textile oils, and so on.

"Neither the manufacturer, nor the treasury department, without elaborate and complicated administration machinery, can possibly trace the oil to its ultimate use," it is brought out.

To Rule on Anti-Trust Law Validity

AUSTIN, March 19.—After conclusion of arguments on the constitutionality of Texas anti-trust laws, Judge J. D. Moore March 15 recessed Attorney General James V. Allred's suit to oust 15 major companies and two trade associations from doing business in the state until March 28.

Judge Moore said he would at that time have ready his decision as to the constitutionality of the anti-trust statutes. In the event Judge Moore holds the law unconstitutional, trial of the case on its merits would be held in abeyance until validity of the statutes was passed upon by the State Supreme Court.

R. L. Batts, former judge of the United States Circuit Court of Appeals, and now of counsel for the defendants in the ouster case, concluded arguments for the oil companies. Batts addressed a query during his argument to Allred asking why the bus companies and power interests had not been prosecuted and added that he supposed the Attorney General must believe that operations of those businesses is in accord with good public policy.

The main portion of the oil companies' attack was centered on the contention that exemption of farm cooperatives and labor unions from prosecution had rendered the main body of the antitrust statutes invalid.

Postpone Southwest Rate Change to July 14

WASHINGTON, March 21.—Upon the solemn assurance of the railroad freight rate tariff makers that they could not complete the physical labor involved in the making of tariffs, the Interstate Commerce Commission has postponed the effective date of its order requiring a revision of southwestern rates on petroleum and its products from April 15 to July 14. The order in this case was first issued more than a year ago.

Inability to complete the work was alleged to be due to the fact that within the last year so many new tariffs had had to be made that the petroleum revision could not be made operative on April 15. Under this order some increases and some reductions will be made.

This revamping was made in obedience to a resolution of Congress, known as the Hoch-Smith resolution, adopted in 1925, with a view, on the part of Congress that rates on agricultural products could be reduced by raising those on other commodities.

The Hoch-Smith revision, making increases in the territory east of the Mississippi, with a very slight admixture of reductions, went into effect on March 15, except as to rates from Bayonne, Marcus Hook and other eastern refining points to the St. Paul, Minn., group and from eastern refining points to destinations on the Bristol and Norton branches of the Norfolk & Western.

Conclude Attack on Texas Common Purchaser Law

HOUSTON, March 19.—Trial of the suit attacking the validity of the Texas common purchaser law, as it applies to gas purchasers, was concluded in federal court Friday. Plaintiffs in the suit, which grew out of the attempt of the state to enforce the law in the Texas Panhandle gas fields, were Texhoma Natural Gas Co., Panhandle Eastern Gas Co., Texas-Interstate Pipe Line Co., Cities Service Gas Co. and North American Oil and Gas Co.

The case was heard by three federal judges, with Judge J. C. Hutcheson, Jr., of the U. S. Circuit court, presiding. The state contended that the statute is reasonable and enforcement is necessary to prevent drainage of one company's lease by wells of another company fortunate enough to have a market.

Cooley Elected Chairman Of Advisory Group

TULSA—William H. Cooley, Los Angeles, was elected chairman of the Oil States Advisory Committee, at the annual meeting in Oklahoma City. He succeeds Cicero I. Murray, who continues as executive director and counsel for the committee.

Cullen Thomas, Dallas, was elected vice-chairman and Thurman Hill, member of the Kansas Public Service Commission, secretary and treasurer.

The committee met in closed session, devoting much of the time to consideration of the proposed interstate compact for conservation of oil and gas. It is planned to present a form of compact to congress in about two weeks. That body will be asked to enact legislation authorizing the oil states to enter such an alliance.

MIAMI, Fla.—Orange State Oil Co., of which J. E. Fenn is vice president and general manager, has become distributor of Cities Service Oil Co. products.

Lease and Employment Contract Upheld in Michigan Court

DETROIT, March 19

THE lease and agency and kindred methods of controlling retail outlets for gasoline have been upheld in principle in Michigan. One case involving whether cancellation of an employment contract also implied cancellation of the lease of the station property, has been decided in the negative by the Supreme Court of the state.

This court, Michigan's highest tribunal, has ruled that a lease of real estate and a contract of employment are two separate things, even though they appear in one document. In recent suits in Ohio and North Carolina litigants have alleged that although the leases and the agency agreements or contracts of employment are written separately, they are presented to a dealer simultaneously and therefore constitute one transaction.

The case which reached the Supreme Court of Michigan, was that of the Shell Petroleum Corp. against Frank E. Ford and the Lansing Oil Co., both of Lansing.

The Lansing Oil Co. was a co-defendant because Ford took on the sale of its products after he had ousted Shell products from a station he had leased to Shell. It was absolved of conspiring to induce Ford to break his contract with Shell.

A lower court dismissed the Shell action but the case was decided in Shell's favor when appealed to the Supreme Court.

According to the syllabus of the case, Shell and Ford entered into a lease and contract of employment agreement in September, 1927. This was almost two years before major companies began a scramble to get control of retail gasoline outlets by leasing them under a plan that harmonized with the Code of Marketing Practices which the federal trade commission has approved a few months before.

Ford was building a service station in Lansing when he ran out of funds. The station was being built on ground to which he had just taken a 10-year lease. Shell came along, and offered to advance him $3500. Shell took a lease on the property from Ford and a mortgage on the improvements. It agreed to pay a rental of $1500 a year.

Ford assigned his lease from the fee owner to Shell for a five-year period, and took a sub-lease from Shell. He also signed a contract of employment to sell Shell products exclusively at the station when completed.

There was an understanding that when the $3500 mortgage was paid off that the underlying lease on the real estate would be re-assigned to Ford and the sub-lease would be cancelled.

In May, 1930, Ford notified the Shell that he would pay off the mortgage, cancel the lease to Shell, and cease to act as its agent or employe. Shell refused a tender of the amount due on the mortgage refused to recognize cancellation of the lease, but admitted that Ford had a right to leave its employ. Then Ford put in Lansing Oil Co. products.

Shell filed a bill asking that Ford be restrained from withholding possession of the property from it, from removing any of its equipment and from selling any petroleum products other than Shell's. Shell also asked that the Lansing Oil Co. should be restrained from inducing Ford to break his contract with Shell.

The Supreme court ruled that Shell was the lessee in possession of the property; that Ford's occupancy was as an employee in charge of the sale of his employer's products. It ruled that Ford had a right to terminate his employment but that he could not terminate the lease although the lease and contract of employment were written as one document. There was no provision for the cancellation of the lease, the court ruled.

"There is nothing in the instrument to indicate that the continuance of one depends upon the continuance of the other," the court held. "The lease was for a definite term of five years. The employment might be terminated whenever Mr. Ford desired it or whenever his services were not satisfactory to the plaintiff.

"The plain language of the instrument leaves no doubt as to the intention of the parties. The 30-day notice which Mr. Ford gave the plaintiff did not cancel the lease. At that time it had more than two years to run. Ford terminated his employment and thereafter his occupancy of the premises was unlawful. The plaintiff had a right to possession for the exclusive sale of its products."

JUSTICE McDONALD, who wrote the opinion, held that Shell had a right to an injunction against Ford because for more than two years Ford had benefited from the nation-wide advertising of Shell products, and the building up of trade and goodwill. However, Justice McDonald ruled, as it was impossible to measure the damages Shell suffered by Ford's ousting of the Shell from the station Shell had no adequate remedy at law. Shell was given a decree restraining Ford from interfering with its possession.

The Lansing Oil Co. was absolved of the charge that it had unfairly and fraudulently induced Ford to break his contract.

Since the industry adopted the Code of Marketing practices it has been the practice of the major companies to make as separate documents the leases of independently owned service stations, and the agreements covering agency, authorized dealer, contract of employment or whatever form the contract between the owner who continues as the operator, and the company may be called.

NEW YORK, March 12.—Montreal Locomotive Works, Ltd., Montreal, has announced that it will manufacture and sell a complete line of process plants and equipment for oil refineries. Patents and processes of Alco Products, Inc., New York, will be used.

Third Tanker of Roumanian 'Gas' On the Way to Detroit

NEW YORK, March 19 THE Norwegian tanker Raila is expected to arrive in Baltimore March 20, carrying 2,700,000 gallons of Roumanian gasoline, consigned to the Sunny Service Oil Co., Detroit. The ship was reported in distress off Cape Hatteras, but proceeding into port under its own power.

This is the third tanker of Roumanian gasoline for this Detroit marketing company within a year. The first was a shipment of 3,000,000 gallons, which arrived in Montreal late last September, and there was transferred to barges for movement through the Great Lakes to Detroit. Shipment was in a Norwegian vessel from Constanza.

The second cargo, 80,000 barrels, about 3,350,000 American gallons, arrived in the Arcola, in November. It was unloaded at the terminal of the Seaboard Midland Petroleum at Baltimore and reshipped by rail to Detroit. Closing of navigation on the St. Lawrence made it impossible to move this to Detroit via Montreal. This shipment was reported laid down at a cost of 4.7 cents a gallon, Baltimore, and 7.26 cents at Detroit. It is understood a change in the rate of exchange, after the contract was signed, made the deal even more favorable to the Detroit oil company.

It is likely that the availability of tankers at bargain rates, under present conditions, has considerable to do with the shipments of Roumanian gasoline to this country. Ships can sometimes be obtained at very low figures, as compared with published charter rates; and when, on top of this, distress gasoline can be picked up, the resulting deal is highly advantageous to the American oil company making the purchase abroad.

A traveler in Roumania this winter told NATIONAL PETROLEUM NEWS that 62-63 benzine was selling in Constanza for the equivalent of 3.85 cents a gallon; U. S. motor gasoline at 3.42 cents and kerosine at 2 cents. The freight rate from the refining center of Ploesti to the shipping port of Constanza was 1.25 cents a gallon. These prices are said to be somewhat above what was quoted last fall, when the two shipments to Detroit were made.

Gasoline was retailing in Bucharest, capital of Roumania, for the equivalent of 36 cents a gallon, of which nearly 13 cents was tax.

It was hoped that an agreement concerning petroleum shipments made between France and Roumania would improve market conditions in the latter country. Details of this agreement were lacking, but it was understood it would provide an organized market for a minimum of 400,000 tons of petroleum products from Roumania each year for three years. Shipments in 1931 to France from Roumania were 480,000 tons, 11 per cent of French requirements.

The first Roumanian gasoline received by the Sunny Service Oil Co. in Detroit ran 59.4 gravity; initial boiling point 94F; 10 per cent point 143F; end point 380F.; It had an octane number of 69.4 and color was 25 plus.

The Sunny Service Oil Co., of which Charles Austin is president, markets a considerable volume of gasoline in Detroit. The last few months it has been paying gasoline tax on 2,000,000 gallons a month. Early in the year the company sold under the general retail market in Detroit. Now it is selling at the market. It advertised the Roumanian gasoline as imported gasoline.

Universal Sues C. J. Pratt

ST. LOUIS—Universal Oil Products Co. has sued C. J. Pratt, inventor of the Pratt cracking process asking that Patent No. 1,752,264 be assigned to Universal. The company alleges that Mr. Pratt applied for his patent just after leaving the Universal and that he discovered his improvement in the art of cracking while an employee of Universal and under contract to turn it to the company. He installed a plant embodying the invention for Lubrite Refining Corp., East St. Louis.

Union to Move California Gasoline to East Coast

NEW YORK, March 22.—Union Oil Co. of California has contracted to supply James B. Berry Sons' Co. five or six cargoes of 65 plus octane gasoline for Atlantic seaboard delivery over the balance of the year. The first boat is expected to arrive at Tiverton, R. I., April 10. Price is understood to be based on differential under published tank car price at New York harbor.

The Tiverton terminal is property of the New England Terminal Co. which is owned 50-50 by the Berry company and L. D. Pierce (Pennsylvania Petroleum Products Co., Providence). The terminal has been in operation since early in 1930.

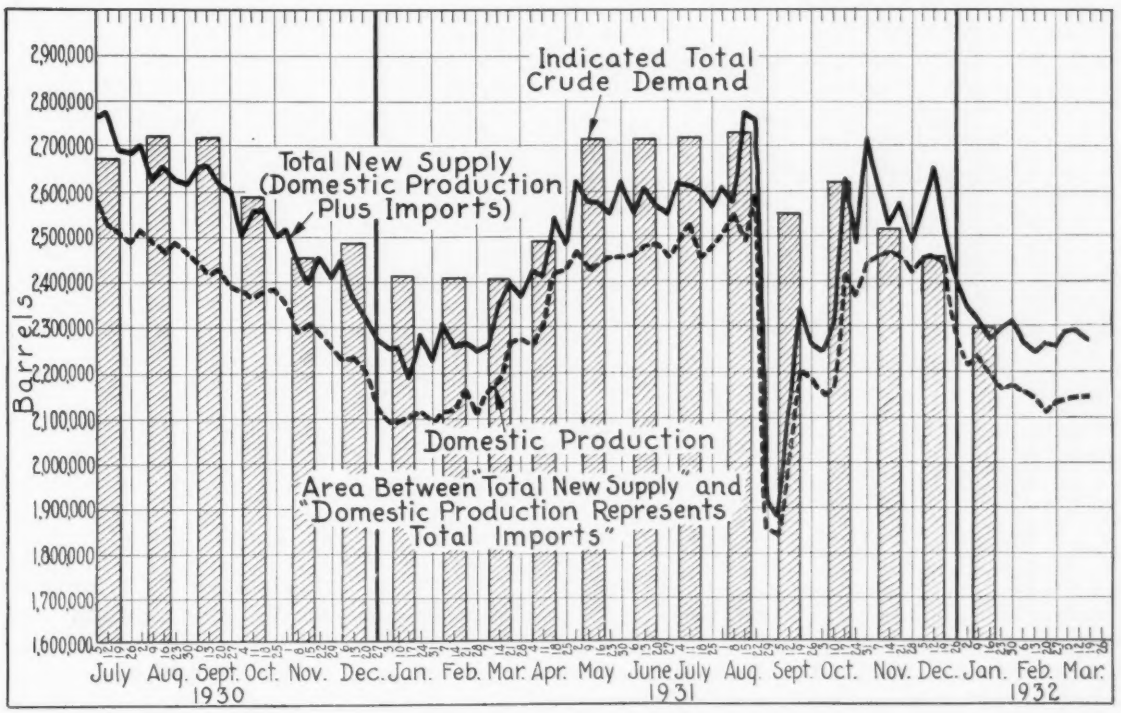
The Berry company is also understood to be negotiating for terminal space in the Baltimore district from which it intends to supply western outlets, including Ohio valley territory. Berry also has a compounding plant and terminal at Carteret, N. J., which it has been operating for many years.

Waite Phillips Buys Building

TULSA, March 17.—Waite Phillips has purchased the University Club building at 116 East Fifth street, across the alley from his newest office building—The Philcade. The building occupies a frontage of 50 feet on Fifth street and extends back 100 feet. The University Club formerly occupied the second and third stories, but recently took over the Y. W. C. A. building.

As part of the consideration A. C. Fonda of Dallas, Tex., former owner, acquired title to the southwest corner of Twelfth street and Boston avenue. Mr. Phillips has not announced what use he will make of the building.

Review of Late Production News



This chart shows crude supply according to the American Petroleum Institute reports (solid line) in relation to indicated crude oil demand as taken from the Bureau of Mines monthly reports (shaded columns)

DOMESTIC crude production rose 11,600 barrels daily average to 2,157,200 barrels per day in the week ended March 19 according to the American Petroleum Institute. Imports for the week were off 51,428 barrels daily average to 101,715 barrels per day.

East Texas output rose 5750 barrels daily average to 329,350 barrels per day so the state railroad commission reduced per well allowables sufficiently to bring the total again below 325,000 barrels daily. Oklahoma output rose 2150 barrels daily average and California 1700 barrels.

California

A NEW record for drilling speed at the Kettleman North Dome is being established on Superior Oil Co.'s Huffman No. 4, located on the northwest plunge of the prolific structure. Spudded in Feb. 26, a string of 13⅜-inch casing was set at 1500 feet and on March 18 the drill was in hard brown shale below 6168 feet. Early in the field's life it took from four to six months to reach the brown shale.

Huffman No. 4 penetrated the brown shale at 6000 feet, or about 200 feet deeper than its depth in Huffman No. 3, an upstructure offset.

On the east flank of the North Dome structure, North American Oil Consolidated's Signal No. 1, which was brought in barefoot on Feb. 20 and died March 2 was drilling ahead at below 8800 feet and reports indicate hole will be carried to the "Whepley shale" found to underlie some 1600 feet of Temblor formation in Associated Oil Co.'s Whepley No. 2, Sec. 35, 21-17. A water witch run in Signal No. 1 showed a source of water at 8430 to 8440 feet.

Petroleum Securities Co.'s Burbank No. 1, discovery well of the middle dome, is still engaged in a fishing job. This well was originally drilled to 9332 feet and on a production test yielded about 2000 barrels of fluid, cutting nearly 50 per cent. Its present difficulties developed when efforts were made to find the source of water.

In the Coastal area, General Petroleum Corp. has practically abandoned Hollister No. 1, a shallow test of a surface outcrop of the Sespe formation. The crew drilled to a depth of 1329 feet, passing entirely through the Sespe and some distance into the underlying Tejon formation. Prior to abandoning the project a production test was made, first at 1329 and again at 760 where cores had indicated sands streaked with oil. Both tests were fruitless.

Associated Oil Co. is deepening its Lloyd 83 in the Ventura Avenue pool after failure to develop a steady flow from a depth of 8571 feet. This is the third well to be drilled below 8500 feet in the Ventura field. Shell Oil Co.'s Taylor-Lloyd No. 2, on the edge of the structure failed to develop production although drilled to a depth of 8674 feet. Associated Oil Co.'s Lloyd 57 discovered the deeper

Daily Average Production Important Districts, American Petroleum Institute Figures

(By Telegraph)

	Week Ended Mar. 19 Barrels	Mar. 12 Barrels
Okla. City	91,450	93,500
Total Okla.	421,150	419,300
East Texas	329,350	323,600
Total Texas	845,600	840,300
California	508,000	506,300
East of Rockies	1,649,200	1,639,300
Total U. S.	2,157,200	2,145,600

producting horizon, or "57" zone, at 8823 feet and it is expected Lloyd 83 will approximate this depth.

Oklahoma

SOME interest was felt in the joint test of Barnsdall Oil Co., Gypsy Oil Co. and others in the NE NE SW of 25-6-4E, between the Konawa and Asher pools. It had a showing of oil in a sand which was cored from 2713-23 feet. Preparations were being made at the close of the week to test the showing.

While the latest order of the Corporation Commission of Oklahoma boosted the allowable production of the field to 105,000 barrels, so much of it is allotted to the underproduced wells that current allowable from wells which are even with their schedule amounts only to about 92,000 barrels daily. Considerable progress is being made in getting the "underage" cleaned up and it is thought that by May 1 the records will be clear. Production for the first half of March averaged 86,000 barrels and pipeline runs 10,000 barrels more. The difference came in the takings from storage of "underrun" oil.

In this field two more wells in the southwest area add importance to the district in which development lagged while the rest of the big well territory was being drilled. Wellesley Oil Corp., in the SE NW SW NE of 22-11-3W had Wilcox sand at 6480-6565 feet and flowed 2662 barrels in four hours. Its gas volume was estimated at 23½ million feet per day. In the same section, Slick-Urschel, Inc., in the center of the west half, SE SE SE, had Wilcox at 6455-6555 feet and a flow of 5807 barrels in four hours, with 34 million feet of gas.

Considerable is being added to the potential rating of the field by this area, which is along the steeply-dipping west flank of the structure, and the greater part of the new work in the field this year will be in Secs. 22 and 26.

A wildcat that held some promise was completed as a Wilcox failure. Atlantic Oil Producing Co.'s test in the NE SW SW of 8-13-6, Lincoln county, south of the Davenport and Stroud pools, had a hole full of water at 4444 feet.

Kansas

OPERATIONS in Kansas have revealed nothing new for several weeks. With only a few wells drilling in the west central area, which, from a potential standpoint, is the state's best bet, little is being added to the possible production. In the so-called Goodrich area, northeast of the Valley Center pool, Continental Oil Co.'s old chat formation producer in the SW NE SW of 16-25S-1E was deepened to the Viola lime at 3341-47 feet and made 490 barrels, pumping, in 24 hours. This well was completed in the chat in January, 1929, and made 4100 barrels.

Texas

FOUR outpost tests in the East Texas district, two wildcats in Upshur county and two in northeastern Cherokee claimed the bulk of attention in Texas.

In Upshur, J. K. Wadley and Evans No. 1 Oliver, in the Sophia Sanders survey, about six, or seven miles north and some east of Cranfill & Reynolds et al No. 1 Rash estate, logged base of Pecan Gap chalk at 2970 feet and was drilling around 3225 feet after logging Blossom sand from 3211-23 feet. Base of Pecan was 2597 feet below sea level, compared to a minus of 2634 feet on the same marker in Cranfill — Reynolds et al No. 1 Rash producer.

McFarland et al No. 1 Starr, in the C. H. Copper survey, two miles east of Cranfill & Reynolds et al No. 1 Rash, was reported drilling below 2850 feet. Top of Pecan Gap chalk was at 2372 or 2100 feet below sea level, compared to minus 2089 on top of Pecan in Cranfill & Reynolds well.

About a mile and a quarter north of the nearest production in the regular East Texas field, Eslick et al No. 1 Whitehurst in the McKinney and Williams survey, was preparing to test from corrected sand measurement now carried from 3616-32 feet. The corrected depth of sand has apparently more closely identified Eslick et al No. 1 Whitehurst with the regular field. First reports credited sand from 3688 to 3701, which would have indicated it was found at about the same sub-sea level as in Cranfill & Reynolds No. 1 Rash estate, about three and a half miles further north.

Merry Brothers and Perrini No. 1 Annie Kelley, in the M. D. L. S. Coy survey, Cherokee county, had drilled to 3180 feet after topping Pecan Gap at 2670 feet. Clopton et al No. 1 A. P. Pace, further south in Cherokee County and in the W. Dikes survey on acreage obtained from Shell and Humble, drilled to 1420 feet.

Coring of sand from 2461-72 feet in Henderson Coquat and Phillips Petroleum Co. No. 2 Sanger in Live Oak county from which a drill stem test showed four fourbles of mud and oil was probably the feature of Gulf Coast and Southwest Texas development during the week. Only the bottom five feet of the core showed any degree of saturation, but absence of water, which appeared with oil from the same sand in No. 1 Sanger, was regarded favorable.

Leasing and royalty buying in Crockett county in the Permian Basin furthered belief that a deep test is definitely planned in the area centering around blocks UV and WX. Crockett county is southwest of Reagan in which Big Lake Oil Co. and Texon Oil & Land Co. have nine deep wells producing from the Ordivician. The Crockett county test, confirmation on which is yet lacking, is scheduled to drill to Ordivician. Humble Oil & Refining Co., The Texas Co. and Superior Oil Co. of California acquired about 20,000 royalty acres in the vicinity during the past week.

Gulf Loses Title Suit

HENDERSON, Tex., March 19.—Verdict in favor of the Continental Oil Co., East Texas Refining Co. and H. L. Hunt, who sued the Gulf Production Co. on title to 309 acres in the East Texas field, was returned by a jury in district court at Henderson. The property is estimated to be worth more than one million dollars. Gulf had drilled eight producing wells on the land, which is in the Francisco Cordova survey, Rusk county. The Gulf gave notice of appeal.

Texas Commission to Write New Proration Orders

TULSA, March 19

HEARING called by the Railroad Commission of Texas for March 30, in Austin, will consider proration policies for fields now allowed 374,000 barrels daily, maximum production.

That no maximum for the state will be set by the commission and no renewal of the tri-state agreement of 1931 will be had was indicated by Chairman C. V. Terrell, in commenting on the proposal of Thurman Hill, member of the Kansas Public Service Commission, that a conference be held in Austin. Mr. Hill asked that Kansas, Oklahoma and Texas be represented through their commissions charged with enforcement of conservation laws. The former agreement was for 1931 only.

Mr. Terrell said that the courtesy of a conference would be accorded to Mr. Hill, but that the Texas law forbids the commission's taking into account market demand in issuing orders. Each pool must be considered separately and on the basis of physical waste.

Districts and pools which will be considered by the commission in its hearing include all of Texas except the East Texas field. The order which limits production in that district to 325,000 barrels daily maximum runs to May 1; a separate hearing will be held to determine the policy thereafter.

Present orders expire April 1 or 16th in most prorated fields. The Panhandle district, with present maximum allowable of 55,000 barrels, is up for immediate consideration, as the present order terminates April 1. Included in this district are Carson, Gray, Hutchinson, Moore, Potter and Wheeler counties.

Order on the North Texas district also expires April 1. Under this the area is limited to 57,000 barrels per day. Archer, Baylor, Clay, Cooke, Foard, Montague, Wichita, Wilbarger and northern Young counties are situated in this district.

The West Central district includes Brown, Callahan, Coleman, Comanche, Eastland, Erath, Haskell, Jack, Palo Pinto, Runnels, Shackleford, Stephens, Throckmorton and south Young counties. It is limited at present to 30,000 barrels daily and the order terminates April 1.

In West Texas, proration orders run on each pool and all expire April 1, with the exception of Ector county, final date for whose order is April 16. Under present orders, Crane and Upton counties are allowed maximum of 16,700 barrels; Ector county, 6300; Winkler, 40,000; Yates pool, Pecos county, 65,000 and Howard and Glasscock counties, 26,000 barrels. No new order was issued on the Big Lake field of Reagan county since the new conservation law was enacted. It is expected that an examination of this pool will be made by the commission, in view of its growing importance.

Fields of Southwest Texas now under proration are Darst Creek and Salt Flat, both in Caldwell county. Darst Creek has maximum allowable of 18,000 barrels and Salt Flat 10,000. Orders on both of these expire April 1. Two other fields of the general area, Pettus, in Bee county and Refugio, in the county of that name, were not placed under proration orders when the commission concluded its hearing in September and October.

The Van pool, in Van Zandt county, East Central Texas, operates under order limiting output to maximum of 50,000 barrels daily. The order expires April 16 and the Austin hearing will include testimony on that pool.

Fields of the Gulf Coast, including the Racoon Bend and Sugarland, flush areas, have been limited in the past by voluntary drilling restrictions, rather than by formal order.

Transfer Superintendent

AMARILLO — Transfer of Earl Hubbard, Panhandle production superintendent for Humble Oil & Refining Co. to the West Texas district is to become effective April 1.

Hubbard is to be succeeded in this area by Humble's production superintendent in the San Antonio area.

Grand Jury Indicts on Oil Theft Charge

TYLER, March 19.—Indictments against seven men charged with embezzlement of sums in excess of $100 through theft of oil in the Gladewater district of the East Texas oil field were returned March 16 by the Gregg County grand jury at Longview.

Justice court charges had previously been filed against the seven men when a by-pass was discovered leading from a well on a negro school lot in the Gladewater townsite.

One well was alleged to be running oil to three different agencies and was connected to two batteries of tanks. The by-pass diverted from the separator, one line leading to an independent refinery nearby and another going to an independent pipeline, which in turn gathered for and marketed to a major purchaser in the field. The well was disposing of its regular allowable in addition to a major trunk pipeline, two employes of which were indicted on a conspiracy charge.

Investigators continued probing other allegations of operating by-passes in the field.

East Texas Allowable Cut to 72 Barrels

TULSA, March 19.—East Texas operations were marked during the past week by two principal events. The Railroad Commission reduced the allowable per well production to 72 barrels daily, effective March 16, and Brig. Gen. Jacob F. Wolters, who has commanded the Texas national guardsmen on duty in the field since Aug. 17, was relieved at his request.

The reduction in allowable

was in conformity with the policy the commission announced when it made its order effective Feb. 25. The maximum that can be produced from the entire field is 325,000 barrels per day and each 15 days the then number of wells is divided into the maximum allowable. As of the 16th, the total number of completed wells in the field was 4509. Not much leeway is left for wells to be completed by April 1, when the next division will be made. There are, however, a number of dead wells which are eliminated in setting the allowable.

Gen. Wolters has returned to his law practice in Houston. Along with his going, the number of troops on duty is being gradually reduced. Lt. Col. Louis Davidson, who has acted as provost marshal since martial law was declared, is in full charge now.

For the week ended March 16, daily average production of the field was 329,872 barrels. Total movement of oil from the district in the same period was 317,557 barrels daily, resulting in addition to storage. Movement of oil, by purchasers, was as follows:

Company	Daily Average Bbls.
Arkansas Fuel	8,675
Atlantic	14,281
Atlas	3,507
Beacon Ref.	980
Boone Ref.	728
Butler & Calhoun	643
Glatex Ref.	204
Gladewater Ref.	231
East Texas Ref.	12,021
Gulf	30,972
Humble	70,623
Kilgore Ref.	214
Liberty P. L.	1,602
Magnolia	46,522
Overton Ref.	725
Shell	19,858
Sinclair-Texas	24,335
Sinclair Ref.	564
Sun	29,520
Southern Ref.	250
Texas	21,846
Texas-Empire	24,881
Tidal	2,988
Tyler P. L.	897

Halt Gas Law Litigation Pending Sharkey Bill Election

LOS ANGELES, Mar. 18—ON THE basis that ultimate disposition of the Sharkey Bill by California voters at the May primary election will definitely determine the extent to which enforcement of the state's Gas Conservation Law should be pushed at Santa Fe Springs, the Associated Oil Co. has asked that the application for a permanent injunction against it and other producers in the field be removed from the calendar for the time being.

Oil companies claim that if the Sharkey Bill, with its provisions to enforce proration of crude production in the state, becomes effective there will not be the same need for the gas law that there would if the oil control bill fails to pass.

Unless a delay is granted the Santa Fe Springs suit is scheduled to be heard May 9, only six days after the state election. Oil companies wish to be spared the expense of preparing for this suit if the need for enforcement of the gas law is removed and yet, they could not make the necessary preparations in the six days following the May election.

Gas production at "the Springs" has declined during the past year until there is practically no waste there now. However, if the case is taken off the calendar, the state has the right to amend the proposed permanent injunction should the Sharkey Bill not pass, or if a new need arose for enforcement of the gas law.

At a hearing on application of the gas law to the Kettleman North Dome structure, Mar. 17, the court continued the case until Mar. 28 with the statement that at that time a ruling would be made on the state's motion to restrict gas production to 350 million cubic feet during the six winter months and 250 million cubic feet in the six summer months.

Questions to be considered by the court in this interval will entail arguments by the state to the effect that there are five definite producing zones in the Kettleman producing strata. The state attempts to establish a basis for regulation of production from these zones with allowable gas-oil ratios for each. Attorneys for oil companies have prepared affidavits claiming the above contention is hearsay and should be thrown out.

Another matter of dispute between state and oil company authorities concerns testimony by state engineers on the natural gas needs of consumers in the northern and southern districts of the state and the gas available from all fields to supply these needs.

Success or failure of the California Gas Law in regulating production of crude oil on the west coast in the future, regardless of the action on the Sharkey Bill, will be determined to a definite degree by the anticipated ruling Mar. 28.

Penna. Crude to Be Advertised

NEW YORK—A new advertising campaign in national magazines, trade papers, and farm publications will shortly be released by the Pennsylvania Grade Crude Oil Association, Oil City, Pa. The association has appointed Hommann, Tarcher & Sheldon, Inc., 551 Fifth Ave., New York advertising agency, to handle the campaign.

Taylor Heads Buying For Socony-Vacuum

NEW YORK, March 18.—J. R. Taylor, in the purchasing department of the Vacuum Oil Co. for 14 years, has been appointed head of the purchasing department of the new Socony-Vacuum Corp.

Prior to his connection with Vacuum, Mr. Taylor was in the purchasing department of the Borden Condensed Milk Co. He started with Vacuum as a clerk in the purchasing department, and in his 14 years of service rose to head of the department.

In his new position Mr. Taylor will be in charge of all purchases made by this world wide organization. At present his headquarters are at 61 Broadway, New York.

Battle of Injunctions in East Texas Has Been a Draw, to Date

By Lawrence E. Smith

N. P. N. STAFF WRITER

TULSA

THE Battle of the Injunctions in East Texas, to one not familiar with the history of this legal shindy, is somewhat confusing.

Several injunctions were issued by the federal court, ordering Gov. Sterling, Adjt. Gen. W. W. Sterling and Gen. Jacob F. Wolters to cease enforcing their executive and military orders against the complainants. The order they are stopped from enforcing is, briefly, one restricting production to 75 barrels per well per day.

The same federal court then issued an injunction, on application of the state Railroad Commission, against E. Constantin and J. D. Wrather, ordering them not to violate the order of the commission, which restricts production to 75 barrels per well daily. The court later enjoined many others concerning whom the Railroad Commission complained.

Thus, Constantin, Wrather, and other operators are freed of the restraint imposed by the governor and the military and the fetters put back on by the same court in decrees that order these operators to obey the Railroad Commission. One injunction cancels the other and the net result is a continuance of restriction of production to 75 barrels per day with, in the commission's order, a top limit of 325,000 barrels daily for the entire field to May 1.

Hence, to those who have not read the opinions of this court, a puzzle ensues. The whole point seems to be it is all right for the commission to limit production and all wrong for the governor to do the same thing.

That is precisely the controlling idea. Through its written opinions the court reveals it is concerned with keeping government in the proper channels which the constitution, federal and state, and the Texas legislature have marked out.

The court proposes to maintain the system of checks and balances on usurpation of authority provided for in the basic instruments of government. It frowns upon the encroachments made by executive branches of state government into the legislative and judicial branches, a tendency that has been growing the past two years. It says, in its opinions: Now, let's all get back on our proper bases and start over. The governor of Texas cannot regulate oil production—no one ever gave him any authority to do that. The people of Texas, through their legislature, put that matter into the hands of the Railroad Commission. That body can enforce its orders through the courts, in the orderly, duly prescribed manner.

THE oil industry is familiar with the high spots in the controversy. The governor, last August, declared martial law in East Texas and closed in the field completely until the Railroad Commission had time to prepare an order, based on the newly enacted conservation law. Through the military, the governor enforced the commission's order until a restraining order was obtained by several operators, whereupon the governor took matters completely into his hands and issued his own curtailment orders until enjoined by the federal court in February.

The point that may not be quite clear to many readers is that the federal court in question is as fully committed to the principle of conservation as is the most ardent conservationist in the industry. That trend of thought is clearly revealed in its opinions.

In the case of F. C. Henderson, Inc., against the Railroad Commission, Circuit Judge J. C. Hutcheson, Jr., District Judges Duval West and William I. Grubb, passed upon the constitutionality of the Texas law under which the commission functions. As to the laws it said:

" . . . . We are not in doubt that both upon considerations of securing and preserving the correlative rights of persons in property, though owned by them, of the shifting and fugacious kind which oil and gas is, and upon considerations of conserving the natural resources of the state, ample power exists in the legislature to prevent the wasteful utilization of oil and gas, and to regulate and control their production and use in such reasonable way as to bring about their conservation, and to prevent their dissipation by waste.

"We therefore reject all of plaintiff's contentions against the statutes founded upon legislative want of power, and address ourselves to a consideration of the question whether the legislature has clearly and in a reasonable way undertaken to exercise that power. We think it has. . . ."

The foregoing as to the law itself. As to the delegation of enforcement authority to the railroad commission, the court, in the same opinion, said:

" . . . . It (the statute) delegates to the body charged with the duty, and informed by experience in its discharge, of conserving the oil and gas resources of the state, the fact determination necessary to release a well. Such delegation to an

administrative fact finding body like the railroad commission is universally recognized as reasonable, valid and appropriate."

Those two questions, constitutionality of the conservation laws and the delegation of power to the commission, may be regarded as disposed of in the East Texas matter.

The right of the governor to issue curtailment orders also has been disposed of in the case of Constantin and Wrather against the governor and others. In this case, incidentally, the court, which consisted of Judges Hutcheson and Grubb, who sat in the Henderson case, and Judge Randolph Bryant, made another strong pronouncement on the subject of conservation, with especial reference to East Texas. It said:

" . . . . the East Texas oil field is of great extent, and if proper measures are taken to safeguard against the waste of oil and gas stored there, it has enormous production potentialities. That it is the consensus of informed opinion, with which plaintiffs do not disagree, that the general operation of wells in that field to their full capacity would result in actual physical waste of oil and gas and injury to the strata in which it is confined. . . . . We have held in MacMillan Vs. Commission and Henderson Vs. Commission that the State of Texas has the power to conserve its resources of oil and gas and prohibit the waste thereof. That the commission is the body charged with the administration of those laws, and that its orders issued in pursuance thereof are prima facie valid."

There remains the single question for court determination: is the commission authorized, under the law, to issue the kind of order that it put into effect in East Texas on Feb. 25?

That question will soon be settled. Date for the trial, again before three federal judges, is set for May 5.

The commission's order on East Texas is based chiefly on that provision of the state law which declares waste to be improper use of gas energy or water drive in a pool. In saying that the daily withdrawal of more than 325,000 barrels daily would bring about this character of waste, the commission relied upon the testimony of engineers familiar with the field.

The line of attack of opponents will be not to destroy regulation, but to prove that the order is unreasonably low. To that end, engineers have been employed by certain operators who wish to take more oil than 75 barrels per day, and they are now at work collecting data to prove that a higher rate of withdrawal is possible without waste. Upon that question the control of East Texas will turn.

Drilling at Low Ebb in All Fields Except East Texas

TULSA

THREE or four of the larger Mid-Continent operators show some faint signs now of starting a modest development campaign. If one could eliminate Texas from the situation altogether—if it could be said that none of its oil, in any form, will move into territory heretofore considered the exclusive property of the Mid-Continent producers and refiners, with no great strain on the imagination a "tight" situation in Oklahoma and Kansas could be seen.

Texas, however, cannot be ignored. The only reason, therefore, why certain companies plan to drill a few wells in Oklahoma and Kansas is to support with their own production their refineries and pipelines. The fact is that outside of Oklahoma City there is little oil to be had, under proration.

One heartening factor in the Mid-Continent is the low ebb to which drilling operations have fallen in the past year. Just so long as they remain in that status will the industry be drawing upon reserves already proved. The outlook for new production is not rosy. While there has been considerable geological work done during the lull in drilling, including fairly extensive operation of geophysical instruments, in the two states, and a number of good "bets" mapped, the drill has yet to prove the worth of the finds.

There is in neither state a discovery well restricted in output whose performance warrants the belief that it has opened an important area. Certain scattered discoveries in the Rice-Barton-Ellsworth county area of west central Kansas promise considerable oil, but the dry hole record of the area is likewise imposing and indicative that the development will finally prove a number of small pools.

Comparative figures on field activity show the extent of loss in a year's time, proration and price bringing about a decline of 40 per cent in Oklahoma operations and about a six per cent loss in Kansas. The figures, as of Feb. 17, 1932 and Jan. 1, 1931, are as follows:

Oklahoma

District	Total Operations Feb. 17, 1932	Total Operations Jan. 1, 1931
Enid	29	29
Pawhuska	23	35
Supulpa	73	90
Muskogee	43	73
Okla. City	66	162
Gr. Seminole	23	57
Lawton	35	54
Ardmore	31	34
	323	534

Of this total 192 were shut down a year ago; 137 as of the latest date given. Of the total given for Oklahoma City, only 29 were actually drilling as of the date the last report was compiled.

Kansas operations do not show so great a drop, the flush territory in McPherson county, known as the Ritz-Canton field, being to considerable extent responsible for sustaining activity. Comparative figures follow:

District	Operations Feb. 19, 1932	Operations Jan. 1, 1931
S. E. Kansas	54	49
So. Central	88	88
West Kansas	25	38
	167	175

On Feb. 19, of the total operations in the state, 40 were rigs shut down, 49 were in the location stage and 78 were actually drilling.

Laboratory Vacuum Distillation Unit[1] For Lubricating Oil Study

By Boyd Guthrie[2] and Ralph Higgins[3]

METHODS of distilling topped crude oils and distillates under vacuum, accompanied by good fractionation, have taken a place of major importance in the refining industry. In the refining of petroleum products it is generally desirable to produce a distillate of good quality, and this objective is attained by fractionation of a high degree.

The laboratory and commercial practice have proved that by varying the amount of fractionation the quality of the distillate can be changed, and refiners are cognizant of the advantages of good fractionation. Distillation under high vacuum, however, is a relatively new practice in petroleum refining, and only during the last few years has there been an indication that this method may become a general practice in the industry.

Vacuum distillation offers many advantages over older methods of distilling petroleum products. Vacuum combined with steam distillation, for example, is replacing straight-steam distillation because the quality of the products of vacuum and steam distillation surpasses that of those produced by straight-steam distillation. Although the injection of varying amounts of steam in a vacuum unit is common practice, the amount of steam used is becoming less as the vacuum within the unit is increased.

This report describes the construction of a visible-action laboratory batch still and fractionating column and gives certain data pertaining to the operation of the apparatus under vacuum for the production of lubricating distillates. The apparatus was designed and built to produce lubricating distillates under as nearly ideal conditions as possible, in order that a subsequent study of the characteristics of the distillates could be made.

For example, a study could be made of the distillates obtained up to the point of cracking of the charge if a topped crude were charged to the still; if the still was used as a rerun unit for lubricating distillates a study of nearly the entire charge could be made. Only topped crude has been charged to the still so far, and therefore this paper is limited to the results obtained from the distillation of such a charge. The results so far obtained indicate that such an apparatus is valuable in a study of different crude petroleums as sources of lubricating distillates. * * * *

Consideration of General Design of Apparatus

The important consideration in designing the apparatus was to assemble a still and fractionating column that would yield a well-fractionated lubricating distillate from any suitable charging stock. It was necessary, therefore, to give a considerable amount of thought to different methods of distributing heat uniformly to the charge in the still. It was realized that localized or premature cracking of the charge was to be avoided because the limiting factor determining the quantity of lubricating distillate obtainable from a charge of topped California crude in a batch still at any particular pressure is the cracking temperature of the charges.

Another important factor was the design of the fractionating column, because it is known that the efficiency of a small fractionating column depends upon a means of obtaining a maximum contact between liquid and vapor; and it was considered desirable, therefore, from the experimental work of Hill and Ferris[4] to pack the column with jack chain. The efficiency of a fractionating column depends also upon adequate means of preventing heat losses, and consequently it was considered desirable to construct the column so that the temperature outside and inside the column could be maintained at the same point—in other words, to operate the column adiabatically.

A means of controlling the amounts of reflux was likewise considered a necessary adjunct to the apparatus from which well-fractionated distillates were to be produced, and some means of producing and maintaining an absolute pressure of at least 0.5 millimeter of mercury had to be considered, as well as methods of automatically holding a predetermined vacuum within narrow limits. Fluctuations in the amount of vacuum were to be avoided because the greater the vacuum in the still and column, the greater the effect of any variation in pressure on the boiling point of the oil in the still.

In order that operations within the apparatus would be visible from the outside, it was necessary to construct the still, column, condensers, and receiver of glass.

Construction and Assembly

Figure 1 is a detailed drawing of the experimental laboratory still and fractionating column, showing the auxiliary equipment and control apparatus.

The still 68 is a 5-liter round-

[1]Reprinted from U. S. Bureau of Mines Report of Investigations 3159.

[2]Associate chemist, U. S. Bureau of Mines.

[3]Junior chemist, U. S. Bureau of Mines.

[4]Hill, J. B., and Ferris, S. W., Laboratory Fractionating Columns: Ind. and Eng. Chem., vol. 19, Mar., 1927, p. 379.

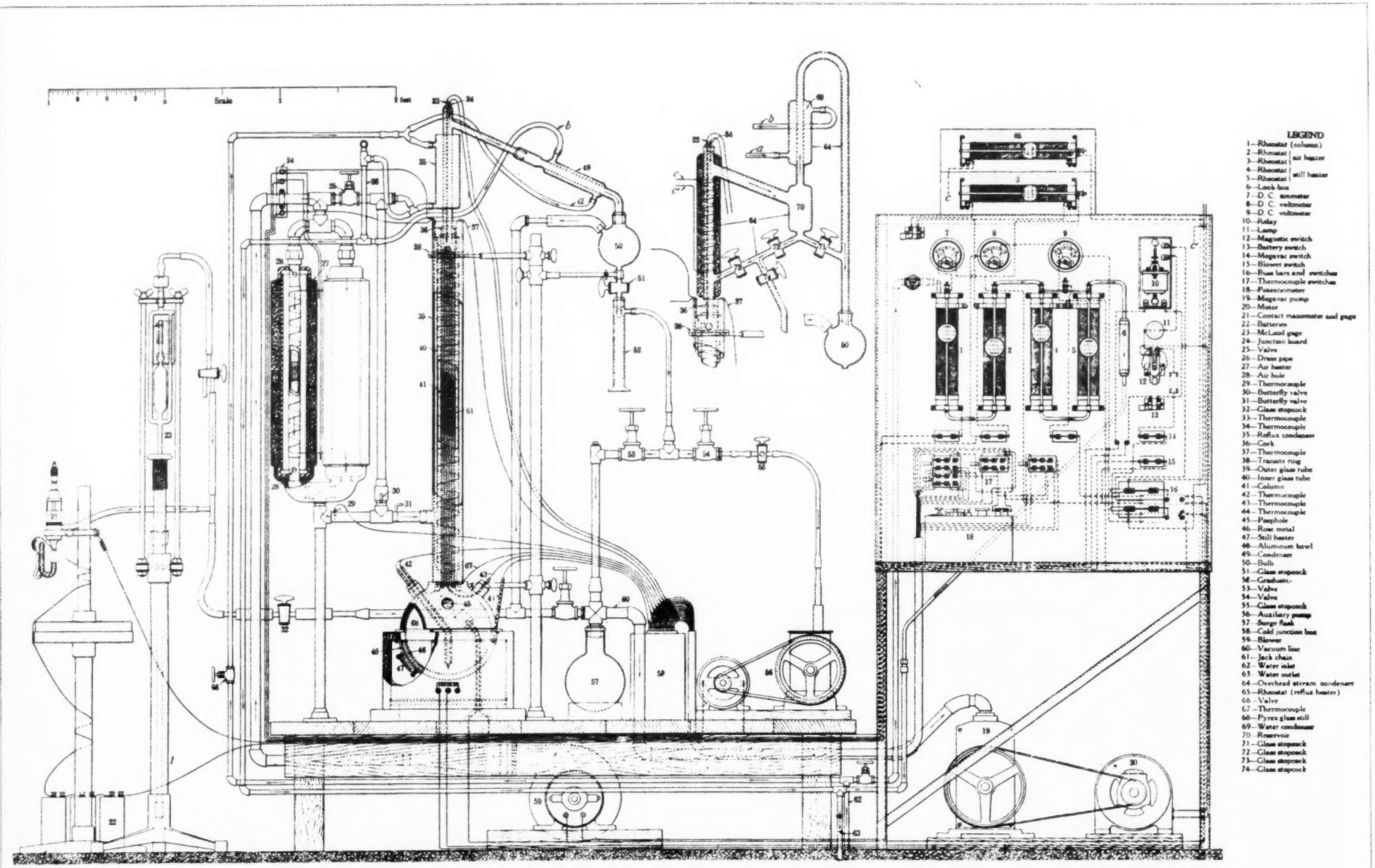


Fig. 1—Detailed drawing of batch still and fractionating column with auxiliary equipment and means of control

bottomed pyrex flask to which the pyrex fractionating column 41 was welded to make the still and column integral. A dephlegmator or reflux condenser 35, also of pyrex glass, is fitted into the column through stopper 36. The delivery tube of the reflux condenser is fitted through another stopper into a short water-cooled glass condenser 49 which in turn is connected to the glass receiver 50 by a rubber stopper.

The upper half of the still above the metal bath is covered with a 1-inch layer of 85 per cent magnesia lagging to minimize heat losses. Two 1-inch diameter peepholes 45 on opposite sides of the still are cut out of the lagging, and an electric light back of the rear hole illuminates the interior of the still and permits observing conditions within the still above the liquid level.

The still heater 47 is a cylindrical sheet-iron container with the opening in the upper end slightly less in diameter than that of the cylinder in order to form a support from which a hemispherical steel cake is suspended. A 2000-watt-capacity coiled nichrome wire element is supported on insulators attached to the underside of the cage. An aluminum bowl, 48, used as the container for the Rose metal[5] bath 46 in which still 68 is partly submerged, is fitted into the hemispherical cage. The heat generated by the electrical element is radiated to the aluminum bowl and in turn transferred to the Rose metal. Hot spots caused by poor contacts between the flask and the source of heat are therefore eliminated.

THE high coefficient of heat transfer of the Rose metal causes a uniform distribution of the heat to the submerged surface of the still and permits rapid heat transfer to the charge of oil in the still. The temperature of the still heater is controlled by two water-cooled slide-wire rheostats 4 and 5 located on the panel board.

In order that the temperature around column 41 could be controlled to maintain adiabatic conditions within the column, two pyrex-glass jackets 39 and 40 were placed around the column. The inner glass jacket 40 is supported in place by transite rings placed at the top and bottom. These rings provide a seal between the jacket and the column, thereby making a dead air space, which is a relatively efficient insulator.

A nichrome-ribbon heating element of 800-watt capacity is wound around the outside of the inner jacket. The supply of current to the heating element is controlled by the water-cooled slide-wire rheostat 1. The outside jacket 39, which is held in place by transite rings at the top and bottom, has a side opening of about one-sixth of its length from the bottom through which hot or cold air is supplied to the space surrounding the middle jacket to regulate the temperature therein.

Fractionating column 41 is tightly packed with approximately 125 feet of No. 16 single jack chain resting on a coarse wire screen supported upon four glass projections on the inside of the column.

The hot air which is injected between the inner and outer jackets of the column is supplied by air heater 27 which is constructed of iron pipe and fittings arranged as shown in Fig. 1. To avoid having a heater of undesirable length, two companion heaters are connected in parallel and the cold-air supply is divided equally between them.

Each heater has a nichrome-ribbon heating element of 1400-watt capacity wound around the center pipes and insulated from them by a layer of mica. Sections of pipe are fitted around the center pipes and held in place at each end by pipe caps through which the center pipe passes.

The center pipe is plugged at the midway point, and two sets of holes 28 are drilled just inside the caps at each end to cause the air that passes through the heaters to move directly over the heating elements. The temperature of the air heaters is controlled by slide-wire rheostats 2 and 3.

The air for the heaters and column is supplied by motor-driven centrifugal blower 59. The proportions of hot and cold air supplied to the column are regulated by means of globe valve 25 and butterfly valves 30 and 31, and the temperature of the air supplied to reflux condenser 35 is controlled in similar manner. Either water or air can be used in the reflux condenser to maintain the temperature required to produce the correct amount of reflux during distillation. When water is used the rate of flow is controlled by a scow clamp on the rubber hose connection at the intake of the reflux condenser. The height of the liquid level in the condenser is regulated by swing drain 26 which is adjustable and can be set at any angle.

The vacuum in the system is produced by Megavac pump 19 through vacuum line 60. Surge flask 57 of 2-liter capacity was incorporated in the vacuum system to increase the total internal volume of the system and thereby reduce fluctuations in pressure caused by the opening or closing of valves and to act as a trap to prevent charging stock or distillate from reaching the vacuum pump if, for any reason, such material should be sucked into the vacuum line.

THE pressure existing in the system from the top of the column through the lines to the pump may be read on the McLeod gage 23. This pressure reading was considered sufficiently accurate for the work to be done because the difference between the indicated pressure and the true pressure within the apparatus would vary only as the gas within the apparatus varied from a perfect gas.

The distillate is collected in the 100-c.c. graduated cylinder 52 which can be changed without interrupting the distillation. An auxiliary receiver or bulb 50 is included in the system. The distillate may be collected in this bulb when stopcock 51 is closed. In order that the subatmospheric pressure in graduated cylinder 52 can be released to atmospheric pressure, the cylinder changed, and the pressure in the cylinder again reduced to the subatmospheric pressure existing in the system, it is necessary to use an auxiliary vacuum pump 56. Changing the cylinder is accomplished by the manipulation of valves 53 and 54 and the 3-way glass stopcock 55.

All thermocouples are con-

[5]Rose metal is composed of bismuth 50 parts, lead 28.1 parts, and tin 24.1 parts, and has a melting point of 95°C.

structed of insulated iron and constantan wire twisted together into one strand. The wires lead to the cold-junction box 58 where each lead wire is soldered to an insulated copper wire connected through switches 17 to potentiometer 18. The cold-junction box is an insulated container in which an ice bath is maintained.

Each cold junction is contained in a closed-end glass tube with the closed and submerged in the ice bath. In this manner the cold junctions are kept at a temperature of O°C and the potentiometer readings can be converted directly into temperature values without a correction factor.

The hot junctions of thermocouples 33, 34, 43 and 42 are sealed in glass tubing and indicate the temperatures at certain points within the system which are under vacuum. The thermocouple 33 indicates the temperature at the bottom of the reflux condenser, and 34 indicates the temperature in the reflux condenser opposite the delivery tube. Thermocouple 42 is submerged in the distilling charge, and thermocouple 43 is in the center of the column 1 inch above the bottom of the chain pack.

THE temperature of the metal bath is recorded by thermocouple 44 which is contained in a porcelain tube submerged in the bath. Exposed thermocouples 37 and 67 are at either end of the dead-air space between jacket 40 and column 41 at a point opposite thermocouples 33 and 43 which are inside the column. Thermocouple 29 is sealed in a glass tube and held in the path of the hot air coming from the air heater.

The operation of the ½-hp. motor 20, belt-connected to Megavac pump 19, is automatically controlled by closed-end mercury contact manometer 21, the open end of which is exposed to the pressure existing in the system. The manometer registers changes of pressure, and makes and breaks the circuit operating the 220-ohm telegraphic relay 10.

Current for the circuit is supplied by three dry-cell batteries. The opening and closing of the manometer circuit opens and closes the 110-volt circuit which operates magnetic switch 12. The 25-watt lamp 11 is connected in series in the 110-volt circuit so as to prevent excessive arcing of the contacts in the relay, because the magnetic switch is designed to operate on alternating current and only direct current is available in the laboratory where the experiments are to be carried out. The magnetic switch is connected in series with motor 20, and the opening and closing of the circuit supplies the current to the motor.

Although the intermittent starting and stopping of the vacuum pump produces a small amount of surging in the system, the quick and positive action of the contact manometer causes the fluctuation to be so small that the distillation is not affected. This fact was later proved by noting the pressure immediately prior to starting the pump and immediately after the pump stopped; the difference between the pressures was about 50 microns, when the operating pressure was 1 millimeter or more of mercury absolute, and did not interrupt or cause any noticeable change in the distillation. A relatively constant vacuum can thus be maintained in the system permitting distillation of the charge at constant pressure.

The quantity of water passing through the water-cooled rheostats can be observed in glass look-box 6 installed on the panel board. The needle valve on the intake of rheostat 1 is used to regulate the quantity of water flowing through all the rheostats.

All permanent connections in the apparatus were made vacuum-tight by coating with shellac. Connections subject to temperature changes and those that would have to be broken from time to time to permit charging and cleaning the apparatus were sealed with a paste of yellow litharge and glycerine to which was added a small amount of calcium hydroxide.

Operation and Procedure

In producing highly fractionated lubricating distillates under high vacuum with this batch still and fractionating column extreme care was taken in operating the apparatus to maintain the following conditions:

1. A constant pressure to insure constant distillation. A pressure of 1 millimeter of mercury absolute at the top of the column was chosen and maintained as the operating pressure throughout the experimental runs.

2. A column in a near-flooded condition. Hill and Ferris[6] found in their work with fractionating columns that the maximum efficiency was attained near the flooding rate. In accordance with the findings of these investigators the reflux liquid in the chain packed column was maintained just below the flooding rate. Throughout the test precautions were taken to prevent the formation of a liquid layer bridging the column through which the ascending vapors would have had to bubble. In other words, the term "near flooding" is used to denote that condition of operation just prior to the formation of a liquid bridge across the column.

3. A constant rate of distillation. The securing of accurate distillation temperatures was thus insured. The rate, after some experimenting, considered best for the requirements of the experimental work to be done was found to be 4½ c.c. per minute.

4. Adiabatic conditions within the column. Heat losses could be avoided under such a condition of operation. Adiabatic conditions were accomplished by maintaining the temperature of the dead air space surrounding the column at about 2°C. above the corresponding temperatures inside the column.

AN ACCURATELY measured charge of 3 liters was placed in the still through the opening in which thermocouple 42 is located. The electric circuit to the still heater, with all resistance out, was closed and the temperature of the charge was allowed to increase as rapidly as possible (requiring approximately one hour), to a point where distillation would begin at the reduced pressure. After the temperature of the charge reached the distillation point, enough resist-

[6]Hill, J. B., and Ferris, S. W., Laboratory Fractionating Columns: Ind. and Eng. Chem., vol. 19, Mar., 1927, p. 379.

Why skim 75-cent crude oil (or 60-cent oil, for that matter) to make 3-cent gasoline?

Nobody wants this straight-run gasoline—the price proves that

Everybody that knows Dubbs cracked gasoline wants it—there isn't enough to go around

You can Dubbs crack your crude oil, gas oil or fuel oil And now you can Dubbs crack your straight-run gasoline and naphtha and bring it up to Dubbs standard

Then all your gasoline is Dubbs cracked gasoline

That means sales—and profits

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Chicago Illinois

Dubbs Cracking Process
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ance was put in the circuit to maintain that temperature.

While the temperature of the charge was being brought up to the distillation point the connections which were not permanent and those which were not vacuum-tight were coated with the litharge-glycerine-calcium hydroxide paste. The motor operating the vacuum pump was then started to reduce the pressure in the system; the micrometer head of the contact manometer was set to make contact when the absolute pressure of the system reached approximately 1 millimeter of mercury. When this pressure was reached the pump would shut off automatically.

Ice was added to the cold-junction box to bring the temperature of the bath to 0°C. The reduction of pressure in the system was gradual, and even though the system was vacuum-tight it required from 10 to 45 minutes to reach a pressure of approximately 1 millimeter of mercury, because no charge was entirely free of air or moisture.

It was possible to secure the desired vacuum only after the air and moisture were removed by the increased temperature and decreased pressure. Any distillate that tended to come over as an overhead stream during the pressure-reducing period, was prevented from doing so by regulating the flow and head of cooling water in the reflux condenser so as to produce total reflux. The pressure in the system was then determined by the McLeod gage and if the absolute pressure was not 1 millimeter the micrometer head, which raises and lowers the contact point in the contact manometer, was adjusted to bring the pressure up or down.

As soon the pressure within the system reached equilibrium, the absolute pressure was again determined by means of the McLeod gage. Sometimes it was necessary to repeat the foregoing operation several times before the desired operating pressure of 1 millimeter of mercury was secured.

The electric circuits that furnished the currents to operate the hot-air heater and heating element around the center jacket were closed when the pressure within the system reached 1 millimeter, and enough resistance was included in each to maintain the temperature of the dead air space surrounding the column (thermocouples 67 and 37) 2°C. higher than the temperature inside the column (thermocouples 43 and 33).

Additional heat was then supplied to the still to start or increase the distillation as the case might be and distillate was allowed to come over as soon as the amount of reflux was such that the tower was on the verge of flooding. The distillation was then regulated to produce a constant rate of 4½ c.c. of distillate per minute; the rate of flooding was also kept constant. If for any reason the conditions of distillation got beyond control, steps were immediately taken to produce total reflux until all conditions of operation were again normal.

Temperatures existing throughout the apparatus were recorded after each 50 c.c. of distillate had been collected. A sample data sheet on which this and other information was tabulated is included in this report.

After each 100 c.c. of distillate had been collected, graduated cylinder 52 was brought up to atmospheric pressure and the cylinder removed. This was accomplished by closing stopcock 51 and allowing the distillate to collect in bulb 50. Globe valve 53 was then closed, and the 3-way glass stopcock 55 was opened to the atmosphere, after which globe valve 54 was opened.

A duplicate cylinder was then installed, and stopcock 55 was closed to the atmosphere. The pump 56 was then started to bring the pressure in the cylinder down to the pressure in the system, after which valve 54 was closed and valve 53 was opened to allow the system and cylinder to come to equilibrium. Then stopcock 51 was opened to allow the distillate that had collected in bulb 50 to drain into the graduate.

At the start of the experiments the absence of a manometer by which it could be determined when the pressure in the replaced graduate was about the same as the pressure in the system presented some difficulties, but after a few trials the approximate time required by the auxiliary pump to evacuate the graduate to the desired pressure could be judged fairly accurately.

It was not desired to produce distillates after the temperature of the charge reached the point at which cracking occurred, and therefore a distillation was considered complete when a thread-like white gas ran through the condenser and receiving bulb, indicating that the cracking temperature had been reached. After the oil began to crack, the period of operation of the vacuum pump increased appreciably.

After the distillation was completed the heater and motor switches were opened and the system was gradually brought to atmospheric pressure. When the residuum had cooled sufficiently to be handled, it was sucked out through the opening from which thermocouple 42 had been removed. Approximately 300 c.c. of kerosine was then charged to the still, a stopper placed in the thermocouple opening, and the pressure in the system reduced slightly with the auxiliary vacuum pump.

The kerosine flushed the column, condenser and receiving bulb, and removed any heavy ends left from the distillation. The kerosine was then removed and the flushing operation repeated with benzol to insure the

Table 1

Physical and chemical properties of crudes used as charging stocks to still

Topped Coalinga Crude	
Gravity A. P. I.	12.4°
Flash point	365°F.
Fire point	420°F.
Conradson carbon	9.05%
Sulfur	0.94%
Viscosity, 100°F. (Furol)	1110
Viscosity, 130°F. (Saybolt)	2100
Viscosity, 210°F. (do)	197
Topped Midway Crude	
Gravity A. P. I.	12.8°
Flash point	345°F.
Fire point	420°F.
Conradson carbon	9.0%
Sulfur	1.14%
Viscosity, 100°F. (Furol)	2500
Viscosity, 130°F. (Saybolt)	5080
Viscosity, 210°F. (do)	328
Topped Kern Crude	
Gravity A. P. I.	12.4°
Flash point	355°F.
Fire point	415°F.
Conradson carbon	7.2%
Sulfur	1.21%
Viscosity, 100°F. (Furol)	2200
Viscosity, 130°F. (Saybolt)	4100
Viscosity, 210°F. (do)	281

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removal of all traces of the original charge. After this the benzol was removed from the still and air was blown through the apparatus to evaporate all traces of benzol. The still was then ready for another charge and distillation.

Distillation

Three samples of topped California lubricating crudes were distilled. Two of the crudes were representative samples of oil from the Coalinga and Midway fields, and the third was a sample of crude composed of oil from several Kern County fields. These samples of oil will be referred to in this report as Coalinga, Midway, and Kern crudes.

The crudes were topped to remove all gasoline, kerosine and most of the gas oil, so that the first fraction to come over in these distillations had a viscosity of approximately 40 seconds Saybolt at 100°F. The general characteristics of the topped crudes are given in Table 1.

Carbon residue sulfur, flash, fire point, and viscosity determinations were made on the distilled fractions to determine the nature of the distillate produced. Carbon residue was determined by method 500.12 and sulfur by method 520.21 given in Technical Paper 323B[7]. Flash and fire points were determined by method 110.32, and the viscosity at 100, 130 and 210°F. was determined by the Saybolt Universal and Saybolt Furol viscosimeters.

Distillation of Coalinga Crude

Three liters of topped Coalinga crude, runs 13 to 16 inclusive, was used as the charging stock for the first series of distillations. The operating temperatures of the still and column during the runs are recorded in Table 2. An examination of the corresponding temperatures of each distillation shows that the distillations duplicate each other closely and indicates that duplicate fractions were obtained. Because of this close duplication the distillates were combined and the conditions under which the resultant distillate could be obtained is represented by the averaging of the temperatures of the individual runs.

The curve of the average temperatures of the overhead stream vapors, reflux, oil, and metal bath for each cut during distillation are shown in Fig. 2. An examination of the curves shows a more or less constant temperature differential between the points they represent. The quantity of reflux was such that it maintained a small constant temperature differential between the top and bottom of the reflux condenser as is shown by curves 1 and 2.

The temperature difference as indicated by curves 2 and 3 represents the temperature drop between the top of the column and the oil in the still; the difference between curves 3 and 4 represents the temperature differential necessary between the metal bath and the charge to insure adequate heat input to produce continuous distillation.

It was possible in distilling

[7] U. S. Bureau of Mines. Federal Specifications Board, United States Government Master Specifications for Lubricants and Liquid Fuels and Methods for Sampling and Testing: Federal Specifications Board, Specification 2d. Tech. Paper 323B, Bureau of Mines, 1927.

Table 2

Recorded temperatures of runs 13 to 16, inclusive

RUN 13

Cuts, c.c.	34[1] °C.	33[1] °C.	37[1] °C.	67[1] °C.	43[1] °C.	42[1] °C.	44[1] °C.
50	100	112	124	205	202	233	274
100	107	120	134	217	216	246	286
200	122	134	138	235	234	260	294
300	132	144	146	248	245	269	304
400	140	154	157	258	254	279	309
500	150	164	164	263	262	286	318
600	159	172	172	276	270	293	329
700	170	181	181	284	280	302	330
800	182	192	190	290	283	306	334
900	187	193	191	290	286	311	340
1000	195	201	198	306	300	329	358
1100	206	210	209	309	308	332	363
1200	213	228	229	315	313	338	367

RUN 14

Cuts, c.c.	34 °C.	33 °C.	37 °C.	67 °C.	43 °C.	42 °C.	44 °C.
50	102	115	124	222	215	240	279
100	110	124	131	230	228	251	286
200	123	136	141	241	238	264	296
300	134	147	148	256	249	275	305
400	142	154	154	258	257	282	313
500	152	163	162	272	266	288	320
600	162	172	170	276	268	291	324
700	170	176	174	279	276	302	334
800	180	192	193	288	286	309	340
900	187	199	204	291	290	314	344
1000	194	202	202	291	289	316	347
1100	208	217	218	306	305	331	364
1200	215	228	227	314	313	336	366

RUN 15

Cuts, c. c.	34 °C.	33 °C.	37 °C.	67 °C.	43 °C.	42 °C.	44 °C.
50	99	112	120	200	204	236	271
100	108	122	128	207	212	243	279
200	120	136	139	229	228	256	293
300	132	147	150	252	247	270	304
400	139	155	156	262	256	281	316
500	152	166	164	271	264	290	324
600	165	180	181	282	279	300	331
700	172	188	191	294	288	309	340
800	180	196	196	298	297	318	351
900	190	202	202	302	300	322	350
1000	195	206	219	308	300	322	351
1100	207	218	226	308	306	329	354
1200	216	230	230	311	310	331	356

RUN 16

Cuts, c. c.	34 °C.	33 °C.	37 °C.	67 °C.	43 °C.	42 °C.	44 °C.
50	100	114	118	218	220	246	289
100	105	120	128	222	211	248	280
200	118	130	130	222	218	250	284
300	131	144	142	236	232	262	296
400	142	150	157	241	243	270	302
500	152	162	166	255	252	280	315
600	163	174	176	270	268	293	329
700	173	184	185	283	279	304	334
800	183	192	198	286	285	307	342
900	191	204	211	294	293	316	350
1000	195	208	216	302	302	324	356
1100	206	216	216	310	314	350	370
1200	216	228	230	316	318	344	372

[1]—34 Overhead vapor
33 Bottom of reflux condenser
37 Dead air space top
67 Dead air space bottom
43 Bottom of chain pack
42 Oil charge
44 Metal bath

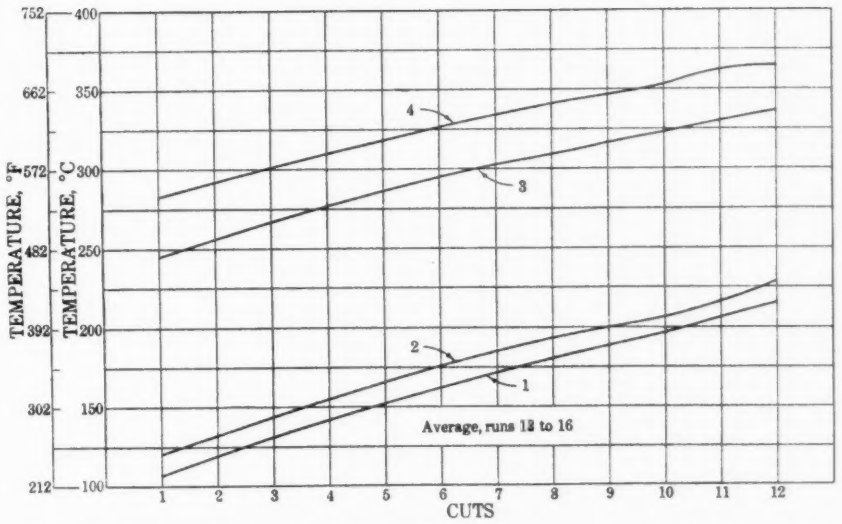

Fig. 2—Average operating temperatures for runs 13 to 16, inclusive. Curve 1 represents the overhead distillation temperature; curve 2, the temperature at bottom of reflux condenser; curve 3, temperature of oil in still; curve 4, temperature of metal bath

Coalinga crude to produce twelve 100 c.c. fractions before cracking occurred and the results of the physical and chemical determinations made on the combined fractions of the four distillations are shown in (Table 3). A brief examination of the tabulated data leads to the following deductions.

The flash and fire points Table 3 show that these points and the differentials between them increase with the number of the cut. The carbon residue percentage (Table 3) shows no appreciable increase until about the sixth cut after which the increase is relatively great. The sulfur content of the cuts, (Table 3) indicates that the sulfur varies independently of the viscosity. The viscosity temperature data (Table 3) shows the viscosity of each cut, the viscosity change between cuts and that this change becomes greater with the increase in the number of the cut.

To determine the degree of fractionation received by the distillate during a distillation, it was necessary to determine the boiling point curve of each cut. This was accomplished by distilling a 100 c.c. sample of each fraction in a modified 200 c.c. Hempel distilling flask, under an absolute pressure of 1 millimeter of mercury. In making this distillation practically every precaution was taken to prevent fractionation so that the resultant distillation temperatures, of each fraction might be assumed to represent the boiling point curves.

The temperatures at which 3, 5, 10, 20, 30, 40, 50, 60, 70, 80, 90, 95 and 97 c.c. of distillate came over were recorded and plotted. The resultant solid line curve drawn through the plotted points was then superimposed (Fig. 3) on the temperature distillation curve (dotted line) of the same fraction of distillate produced by the distillation of the crude in the laboratory apparatus, which is the average curve 1 (Fig. 2) broken up.

The initial and end points of the fractions distilled without fractionation are not plotted because of the extreme difficulty of obtaining checks under such a high vacuum. In some distillations the temperature dropped after 95 per cent had distilled off, whereas in other distillations 97 per cent had distilled before the temperature dropped.

An examination of these curves (solid lines Fig. 3) shows that the average distillation range of each cut between the 3 and 95 per cent points was approximately 12°C. and that there is an average overlapping between the 3 and 95 per cent points of successive cuts of approximately 3°C. This would tend to indicate that each fraction was composed of material of narrow boiling point range (but from the overlapping of 3°C. it is evident that each cut contained a small amount of material that should have been included in the adjacent cuts.)

In a distillation of such material as has been used in the present work it is doubtful if it would be possible to produce fractions which would have a constant boiling point throughout its distillation range, or whose initial and end-point temperatures would not overlap for consecutive cuts. If a distillation were possible which would produce fractions having no temperature overlapping between them, it would be reasonable to assume that the ultimate in fractionation had been obtained with the apparatus, that a continuous curve would result covering the entire distillation range of the combined fractions, and that this curve would in all probability be very smooth.

If the ultimate in fractionation had been obtained with this apparatus it would therefore be reasonable to assume that the boiling-point temperature curve of the fractions (solid lines Fig. 3) would coincide with the temperature distillation curve (dotted line Fig. 3) obtained as the

Table 3

Per cent carbon residue, per cent sulfur, flash and fire temperatures, and Saybolt viscosity at 100° F., 130° F. and 210° F. of each cut of distillate from Coalinga crude. Runs 13 to 16

Cut	Carbon residue per cent	Sulfur per cent	Flash, °F.	Fire, °F.	Saybolt viscosity 100°F.	130°F.	210°F.
1	0.009	0.40	265	290	43.2	37.2	33.0
2	.014	.46	285	320	50.0	41.4	33.2
3	.017	.53	310	345	58.8	46.0	34.2
4	.017	.64	325	370	70.8	50.6	36.0
5	.015	.74	340	390	90.8	57.2	37.6
6	.015	.75	360	410	121.0	67.2	39.0
7	.016	.76	375	425	172.0	84.6	41.2
8	.018	.76	390	440	252.0	109.0	44.8
9	.021	.78	405	460	390.0	151.0	48.0
10	.026	.82	415	475	631.0	217.0	52.8
11	.031	.81	425	490	1,063.0	321.0	60.6
12	.038	.73	435	510	1,877.0	493.0	71.8

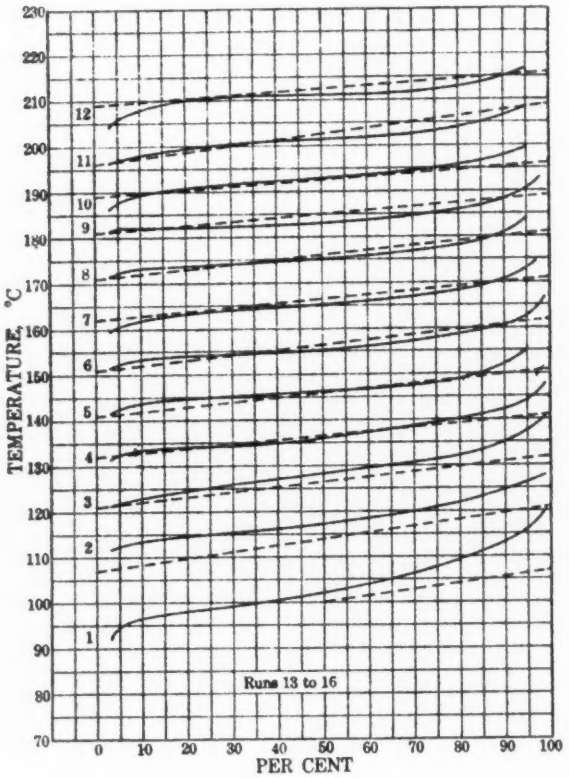

Fig. 3—Degree of fractionation, runs 13 to 16 inclusive. The broken lines represent the average overhead distillation temperature curve 1 of Fig. 2. The solid line represents the present distillation temperature curve of the fractions distilled in the modified Hemple still. The numbers 1 to 12 represent the cuts or fractions

distillation progressed. However because of the impossibility of obtaining ultimate fractionation with this apparatus the two curves would never coincide, but the better the fractionation the more nearly they would approach each other. Thus from the foregoing the degree of fractionation can be referred to as the nearness with which these curves approach each other.

It was desired to determine approximately the reflux ratio existing during a distillation and the pressure drop in the column due to the reflux ratio and chain pack. A distillation using Coalinga crude as charging stock was made after certain changes had been made in the apparatus to make it possible to obtain this information. To determine the pressure differential in the column, a U-tube mercury manometer was arranged with one leg exposed to the pressure existing above the chain pack and the other leg to the pressure existing below the chain pack. The difference between the mercury levels in the two legs of the manometer indicated the pressure difference between the top and bottom of the column.

To determine the reflux ratio with any degree of accuracy, it was necessary to replace the reflux condenser 35 (Fig. 1) with an overhead stream condenser 64. The temperature of the insulated leg of the condenser between the two side outlets was controlled by the rheostat 65 to prevent any condensation of vapors in this section. Vapors which did not condense in the delivery tube condensed in the water condenser 69, and the liquid from both drained into the reservoir 70.

When the reservoir became half full of distillate the stopcock 71 was opened enough to maintain a constant rate of flow of 4 ½ c.c. distillate per minute. Stopcock 72 was opened to allow reflux to pass into the column at a rate that would maintain a constant head in the reservoir. The heat to the still was then increased and maintained at a temperature that would produce enough reflux to keep the column on the verge of flooding Stopcock 73 was then closed and stopcock 74 was opened, allowing the same quantity of distillate to pass through the outlet tube as had passed through into the column as reflux.

The distillate reflux stream which had thus been diverted from entering the column was allowed to drain into a graduated receiver similar to 52, for one minute, which was maintained under operating vacuum. The ratio of reflux to distillate produced was determined from the quantity of distillate collected in the receiver in the given time and the quantity of distillate collected in the graduate attached to the bulb 50, during the same period.

The pressure differentials and reflux ratios were determined at intervals as the distillation progressed, as shown in Table 4. Care was taken to maintain the column on the verge of flooding by regulating the amount of heat input to the still. The pressure differential and reflux ratios are tabulated in Table 4 and indicate that there is a decrease in the reflux ratios and pressure differentials as the distillation progresses.

In the operation of the column it was difficult to maintain a quantity of reflux necessary to keep the tower just on the verge of flooding. Because of this it was desirable to know approximately what effect a small variation in the quantity of reflux would have on the distillate produced. Therefore, a second series of distillations were made in which all operating conditions were the same as for 13 to 16, except that the quantity of reflux was reduced just enough to show by visual inspection a different quantity of liquid in the column.

The same physical and chemical determinations that were made in connection with runs 13 to 16 were made on this second series. A comparison of the data obtained showed in general that fractionation improves as the quantity of reflux increases. However, the decrease in the degree of fractionation was relatively small with less reflux and

Table 4

Approximate reflux ratio and pressure differential of run 17

Cuts No.	Reflux ratio	Pressure differential, millimeter of Hg
1	6 to 1	12.0
2	5½ to 1	11.8
3	5¼ to 1	11.7
4	5 to 1	11.5
5	4¾ to 1	11.2
6	4¼ to 1	10.9
7	4 to 1	10.7
8	3¾ to 1	10.6
9	3½ to 1	10.3
10	3¼ to 1	10.2
11	3 to 1	10.0
12	2¾ to 1	9.5

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did not materially affect the properties of the distillate. * * *

(In their paper Mr. Guthrie and Mr. Higgins also report on a number of distillations of Midway and Kern crudes which are not included here for lack of space.

Primarily the purpose of the paper, as the authors say in their summary, is to show the construction and explain the operation of their apparatus, show data on physical and chemical characteristics of close-cut fractions and show the operating conditions necessary to produce good fractionation can be maintained during a distillation.

The authors are preparing a more complete paper on fractionation and treating of lubricating distillates which is to be published later. Editor.)

Okla. Filter Clay Deposit Opened

FORT WORTH, March 17—Interests associated with the Texas Pacific Coal Oil Co., have opened up a large deposit of Bentonite, or filter clay, especially suitable for contact filtration, near Woodward, Okla., also a complete crushing and drying plant and operations were started March 11. It is said the clay is equal in neutralizing and decolorizing efficiency to the highest grade California clay.

The Thurber Earthen Products Co. is handling this business. E. J. Marston is president, E. R. Lederer and O. E. Mitchell vice presidents and R. Seibel treasurer and secretary.

Cracking, Fractionation, On Chemists' Program

ST. LOUIS, March 17.—Nine addresses on modern refining and engineering problems will be delivered at the mid-west regional meeting of the American Chemical Society, at the Coronado Hotel, St. Louis, May 5, 6 and 7.

Speakers at the petroleum sessions and their subjects are:

Entrainment as a Factor in the Design of Fractionating Columns, by Mott Souders, Jr., and G. G. Brown, University of Michigan.

Problems in Fractionation, by Prof. D. B. Keyes, University of Illinois.

The Properties of Hydrocarbon Mixtures at High Temperatures and Pressures, by Dr. W. H. Bahlke, Standard Oil Co. of Indiana, Chicago.

Cracking Hydrocarbons, by Dr. Gustav Egloff, Universal Oil Products Co., Chicago.

Refining Petroleum Distillates, by Dr. J. C. Morrell, Universal Oil Products Co., Chicago.

Utilization of Modern Motor Fuels, by Wheeler G. Lovell, General Motors Corp.

Research on Petroleum at Penn State, by Dr. F. C. Whitmore.

Thermal Decomposition of Hydrocarbons, by F. E. Frey, Phillips Petroleum Co., Bartlesville, Okla.

Prof. W. L. Nelson, of the University of Tulsa, will also read a paper, the subject to be announced later.

New Continuous Unit Developed

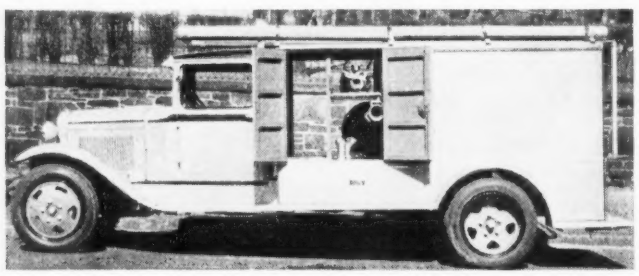
WASHINGTON — A continuous high-vacuum pipe still and fractionating tower distillation unit has been developed at the San Francisco laboratories of the U. S. Bureau of Mines. The apparatus has been developed to a point where extended series of runs may be made in which conditions are kept constant. The apparatus is believed to be the only one of its kind in the United States.

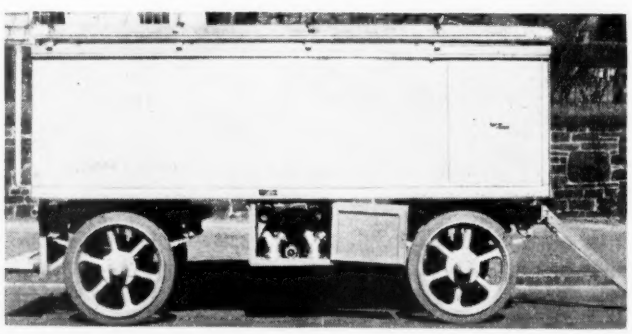
New Foam Unit Carries Five Tons of Chemicals

ADOPTION of a truck and trailer unit equipped with three chemical ejectors for combating refinery fires with a portable system of high mobility is considered by the Gulf Refining Co. as one of the most practicable steps it has taken in insuring against disastrous fire losses. The unit illustrated is one installed in the Cincinnati plant, of the portable foam type.

This unit carries three "Super" chemical ejectors of a maximum capacity of 9000 gallons of foam per minute. Five tons of "A" and "B" chemicals can be carried at all times, and the truck is fitted with compartments in which are stored fire hose for connections to plugs, nozzles, "Deluge" sets and other necessary equipment.

The equipment is distributed on both truck and trailer so that the truck may be used alone, or the trailer left at one place and the truck used at another place, each being a self contained unit so far as fire-fighting is concerned. Equipment and materials may be removed from either and the mobile unit employed to return to a supply base at the central station to bring to the scene of fire chemicals and equipment to maintain a maximum quantity of foam on the fire.





Truck and trailer used by Gulf Refining Co. to carry large quantities of chemicals for fire fighting

Rigorous Tests Being Given Diesel Engine in Truck Chassis

By Allen S. James

N. P. N. STAFF WRITER

TULSA

AUTOMOBILE racing fans will have an opportunity again this year at the Indianapolis races Memorial Day to see another Cummins Diesel racing car among the entries. The machine already is under construction at the Columbus, Ind. factory, and will be driven by Dave Evans, pilot of last year's car.

The racer this year will be somewhat faster than the one last year. Evans plans to go out for speed whereas last year his chief objective was endurance and economy of operation. Last year's car averaged 96 miles an hour in the qualifying trials, but Cummins and Evans agreed prior to the race to keep the average speed in the 85 and 90 miles an hour bracket. The car averaged 86.17 miles an hour for the 500 mile non-stop run, and the total cost of fuel and lubricating oil was $1.76.

The engine in this year's car will contain several principles worked out by Cummins and his assistants in a series of tests in 1931 preparatory to designing his automotive diesel engine late in the year. The engine in last year's car was a Cummins marine type diesel engine.

Although the Cummins company has manufactured diesel engines for several years, it has been only within the past two years that a satisfactory fuel feed system has been perfected to give the engine flexibility. The fuel feed system and the injectors for the fuel are the principal basic patents around which the Cummins automotive engine has been built.

In the Cummins fuel feed system the fuel is metered out to each cylinder in much the same way the electricity is metered via the timer to the spark plugs in a gasoline engine.

Two discs are used in the distributor. These discs are perforated and the holes are so matched that a change in the position of one disc increases or diminishes the amount of fuel fed to the cylinders. A separate fuel line is used from the distributor to each cylinder of the four-cycle engine.

One disc rotates over the other and is so timed that fuel is forced into only one feed line at a time. When the engine is throttled down the hole in one disc does not match perfectly with the hole leading to the injector's feed line to be supplied with fuel for that particular cycle. The speed of the engine, therefore, is governed by the amount of opening made as these two holes pass each other.

Cummins does not use a high pressure fuel feed pump to force the fuel into the compression chamber. Instead he has designed an injection plunger which obtains the necessary pressure from a cam. The accompanying illustration, Fig. 1, shows the injector and the fuel distributor. The tip of the injector which fits into the cylinder head is in two parts, one fitting over the other. A hollow space is provided in the tip for the fuel charge. The fuel is fed through the feed line as shown in the drawing at the top left. A check valve is placed in the injector and operates at 50 to 60 pounds pressure. The fuel is pumped through the gear

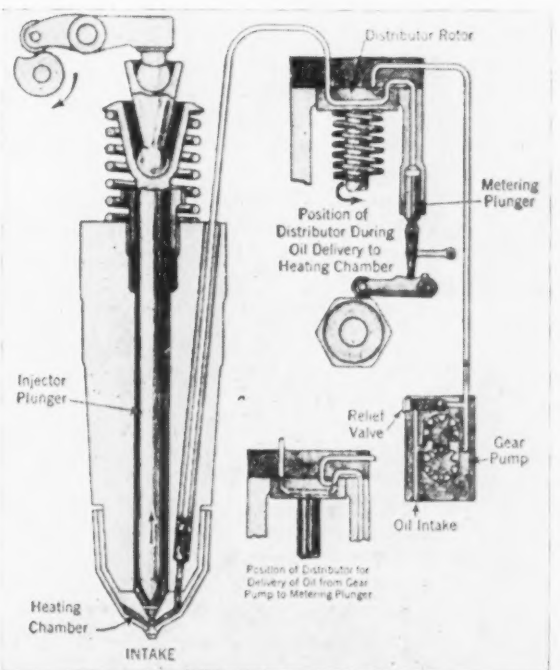


Fig. 1—Injector and fuel distributor of Cummins Diesel

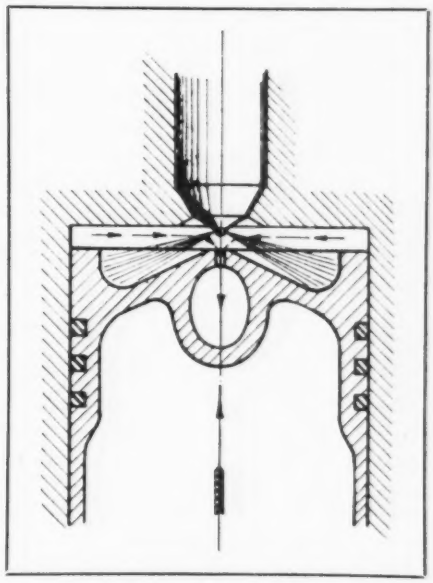


Fig. 2—Combustion chamber of Cummins Diesel showing turbulence chamber in head of piston

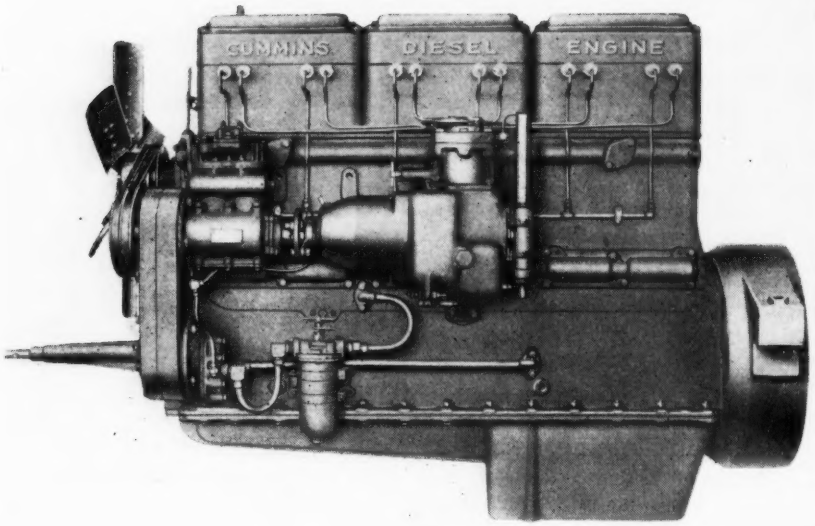


Fig. 3—Side view of present Cummins model showing fuel system, governor, oil pump and oil filter

pump under that amount of pressure, through the distributor rotor and past the check valve into the hollow space in the tip of the injector. The amount of fuel forced into this hollow space is in directly the same proportion as the amount of fuel forced through the opening in the distributor rotor.

The fuel remains in this hollow space through one cycle of the engine. With the outer wall of this injector tip directly in the cylinder head considerable heat is transferred to the fuel as it remains in the hollow space during that cycle.

At the beginning of the compression stroke the cam operating the injector plunger releases the pressure and the plunger rises by spring force. As it rises it draws the hot fuel through small holes from the hollow space into the plunger chamber, and at the same time hot air is sucked from the cylinder through this fuel into the plunger chamber.

Near the peak of the compression stroke the cam suddenly forces down the plunger, creating sufficient pressure to force this pre-heated and partially gasified fuel charge through the spray nozzle tip into the combustion chamber where it ignites under pressure and burns rapidly. On the exhaust cycle the plunger is held down by the cam and no exhaust gases can reach the fuel charge in the hollow heating chamber already pumped there for the next charge.

By using this plunger injector Cummins has gotten away from the high working pressures formerly required in the fuel feed lines.

Fig. 2 shows the shape of the cylinder head used in the Cummins engines to get the maximum amount of turbulence of the fuel mixture as it is forced into the combustion chamber.

A turbulence chamber in the cylinder also is used. A small hole in the head of the cylinder opens into this turbulence chamber. On the firing cycle the pressures in the combustion chamber and the turbulence chamber are equal, but when the pressure is relieved in the combustion chamber on the exhaust cycle, hot gases in the turbulence chamber rush outward with terrific force and are sprayed against the injector tip nozzle with sufficient force to blow off any particles of soot which might have stuck there on the firing cycle.

Cummins and Evans spent considerable time in 1931 testing the engines for flexibility and stamina, as well as economy of operation.

Cummins mounted a marine type diesel engine in a racing car chassis and drove it from Columbus, Ind. to Daytona Beach where on Feb. 7 under the supervision of the A. A. A. contest board he established a record of 100¾ miles an hour.

This car, with a few minor changes, was the one entered in the Speedway races Memorial Day, 1931 and driven by Evans. The Continental Oil Co. supplied their "Germ Process" motor oil for lubrication, and later used the records made by this car in much of its advertising.

In August, 1931, Cummins mounted a marine type engine in an Indiana 3½-ton truck chassis and built a body which would conform to truck specifications required by various states between the east and west coasts. The truck was equipped with berths and a kitchenette. The racing car was rolled aboard, and Cummins and Evans, with Ford Moyer as observer, started a coast-to-coast run from New York to Los Angeles. The 3214 miles were covered in 97 hours, 20 minutes driving time, at an average speed of 33.02 miles an hour. This set a new speed record for trucks from coast-to-coast, the former record being held by a truck which made the distance in a little over 100 hours, running empty. The gross load when the drive started was approximately 17,000 pounds.

Fuel consumption on this trip was 15.75 miles per gallon.

Cummins and Evans returned to Columbus where the automotive type of diesel was designed and installed in the same truck chassis.

A large fuel tank was loaded onto the truck and on Dec. 12, with approximately 900 gallons of fuel aboard Cummins and Evans started a non-stop drive around the Indianapolis Speedway, under the official observation of the A. A. A. contest board.

Cummins and Evans lived aboard the truck the entire time —12 days—and covered 14,600 miles. The drive was stopped by Cummins voluntarily because he and Evans desired to spend Christmas at home with their families. The motor apparently was functioning perfectly as the last lap was made at nearly 50 miles an hour.

The truck traveled 10,005 miles without refueling, and 13,535 miles before the truck's wheels stopped rolling, and 14,600 miles before the motor stopped. No mechanical adjustments were made on the engine

OILS THAT PIONEERED THE WAY FOR TODAY'S MOTOR CARS

HEAT AND WEAR

BURNHAM "Tested" PALES
"the modern oil for modern motors"
WON'T BREAK DOWN

won't Penetrate this Film!

Science wins again! And brings you an oil that has an amazing characteristic . . . a characteristic that has been worded in the strongest sales appeal of all time. *"BURNHAM 'Tested' PALES won't break down!"*

Here is a sales appeal that isn't above your customer's head. He knows what "break down" means. He knows that an oil that won't break down means smoother motor operation, longer motor life, fewer repair bills. He knows that no other oil is offering him this extra protection.

BURNHAM "Tested" PALES *SELL.* First, because they have a perfect, understandable sales appeal. Second, because they live up to that appeal. Third, because they are nationally recognized as the pioneer motor oils for high-speed, high-compression motors.

Calumet Service is just as perfect. Immense storage reserves. Rush shipments without complaint, in drum lots, tank or compartment car, assorted cars, LCL. Direct to you or to your dealer.

CALUMET REFINING COMPANY

4323 So. Western Boulevard - - CHICAGO, ILLINOIS

Branch: Guarantee Title Bldg., Cleveland, Ohio. *Refinery:* Burnham, Illinois.

Refiners and Marketers of Pennsylvania and Midcontinent Motor Oils. Greases for Every Purpose.

SCIENCE GIVES YOU THE MOST POWERFUL SALES APPEAL OF ALL TIMES!

. . . we back it with powerful advertising

"BURNHAM 'Tested' PALES won't break down!" That is the theme of our new advertising campaign now ready for release to our jobbers and dealers. In this advertising, that man-to-man sales appeal is hammered home in a straight-forward manner that wins customers. This service is yours with your first order of BURNHAM "Tested" PALES in warm weather grades.

★ ★ ★

Send for "The Tale of the Pale"

In this interesting little book the complete story of BURNHAM "Tested" PALE Motor Oil is told. *Mail the Coupon for it today.* You will find it fascinating reading. You will be astounded by some of the things it tells you about BURNHAM "Tested" PALES.

CALUMET REFINING COMPANY,
4323 So. Western Blvd., Chicago, Ill.

Please send me "The Tale of the Pale," and information on BURNHAM "Tested" PALES in warm weather grades.

Name.....

Street.....

City.....*State*.....

ATTACH YOUR FIRM LETTERHEAD

during the entire time. The average speed for the 14,600 miles was 43.397 miles per hour.

The engine consumed 1460 gallons of fuel or 10 miles to the gallon. Eight gallons of Germ Process motor oil were consumed, representing a driving distance of 1825 miles per gallon. The drive, incidentally, was under the sponsorship of the Continental Oil Co. and indications now are the records will be used extensively in the company's 1932 advertising campaign.

The weight of the bare engine was 1850 pounds. This weight and its dimensions are comparable to gasoline engines of equivalent power. At present the cost of one of these engines is approximately $300 more than that of a gasoline motor of equivalent horsepower.

Cummins did not design the automotive engine with the idea of adapting it to pleasure cars. Despite the excellent flexibility of the engine as compared to that of gasoline engines used for similar heavy duty the acceleration is not sufficiently flexible for the quick "get-away" required in passenger cars.

Cummins has had 25 of his engines installed in passenger busses operating on long routes in the middle west and along the west coast, and careful records are being kept of their performance under varying conditions.

Gas, Oil Consumptions Vary With Speed, Tests Show

CHICAGO

CONSUMPTION of motor oil and gasoline in automobiles was found to vary largely between different makes of cars, and even more largely at different speeds, in tests made by the Standard Oil Co. of Indiana with 13 makes of automobiles in 1931.

After the cars were operated for 9000 miles at the Indianapolis speedway they were driven over roads in 13 midwestern and Rocky Mountain states. The fleet drove over 401,000 miles, equivalent to about three years of ordinary operation for each car. About 635,000 different readings of speedometers, thermometers, micrometers and other instruments were made in studying the behavior of gasoline and oil.

Oil consumption, for instance, at 55 miles an hour was found to be seven times as great as at 30 miles, and gasoline consumption was about 20 per cent greater. A large car operating at 30 miles an hour may use less oil than a small car operating the same distance at 50 miles an hour, though at the same speeds the lighter car will naturally show a smaller consumption.

In the speedway test the car averages ranged from 8.68 to 15.11 miles per gallon of gasoline with a general average of 11.25 miles. On the road tour they varied from 9.04 to 17.24 miles, and an average of 13.1 miles.

Oil consumption in the speedway tests averaged from 100 to 400 miles per quart, and the general average was 191 miles per quart on a number of different grades and makes of oil. On the road test the range between cars was 93.9 to 731.1 miles, with a general average of 305 miles. The age of the car was found to be an important factor in determining consumption of oil.

By test of competing oils on the speedway it was found that there was little difference in consumption under equal conditions but that important differences showed up in carbon-formation and in crankcase dilution.

Oils and greases were used in accordance with standard recommendations to car operators. Inspection and measurements at the finish showed that these recommendations are adequate to insure all cars against wear under all driving conditions.

There was no need to replace any pistons after the test run, equivalent to three years of ordinary operations. There was no trace of sludge or metallic particles in any of the crankcases. Surfaces at all friction points were in perfect order.

The average wear in the cylinders was found to be less than 1/1000 of an inch. The greatest wear in any one cylinder was less than 3/1000 of an inch.

Standard Oil's "white" fleet has been disbanded. The cars have been assigned to various branch offices for regular service.

Radiator Rust Preventive Developed by Sunoco

PHILADELPHIA—A petroleum product for preventing rust and corrosion in automobile cooling systems has been developed by the Sun Oil Co. It is named Sunoco Radiator Rust Preventive. The product is described in the company's house organ, "Our Sun."

This preventive emulsifies completely in water to form a light protective coating on the water jacket and radiator cores. With reasonably good water one treatment will last about a year. Anti-freeze solutions and hose connections are not affected by the preventive. The preventive has a slightly beneficial effect upon pump packing and retards the rusting of pump shafts.

A small quantity of the preventive is used on a radiator. Four ounces is sufficient for the average car, and six ounces for large autcs and trucks. This is added to a pint of warm water, shaken up, and poured in the radiator. The radiator must be clean or the preventive will not be effective.

The radiator then should be filled to two quarts less than capacity, and the engine idled until the temperature is about 120 degrees, then the radiator filled to capacity or anti-freeze added. The solution is depcsited on the jacket and cores in a thin film, that does not impair the efficiency of the cooling system.

The preventive can be tested by drawing off some water. When the water has a red color the formation of rust is indicated, and the radiator should be cleaned and re-treated.

The Interstate Board of Dixie Distributors taken at a meeting in Chicago last December. Left front and around the table; C. J. O'Connor, O'Connor Oil Corp., Fond du Lac, Wis.; Gray Czeskleba, Czeskleba Oil Co., Waupaca, Wis.; W. M. Kaloupek, Home Oil Co., Grinnell, Ia.; O. J. Shaw, Lincoln Oil Co., Lincoln, Nebr.; J. W. Gehrken, Monroe Co-operative Oil Co., Monroe, Mich.; Miss V. H. Frisbie, Insterstate secretary; Paul R. Kempf, Staebler Oil Co., Ann Arbor, Mich., Interstate chairman; E. Bert Rentmeester, Oconomowoc Oil Co., Oconomowoc, Wis.; Harry W. Renfrow, Tulsa Oil Co., Springfield, Ill.; E. E. Wahls, Chenoa, Ill.; A. F. Geyer, Waterville, Kans.; Neil Staebler, Staebler Oil Co., Ann Arbor, Mich.; W. N. Kueneman, Dixie Booster; J. A. Dennis, Iowa Independent Oil Co., Knoxville, Ia.

200 Marketers in Nine States Sell Under «Dixie» Brand Name

OF SEVERAL co-operative ventures that have been tried in the marketing branch of the oil industry, there is one outstanding example of success—Dixie Distributors.

Perhaps one reason for its success over the past six years has been the fact it has grown, rather than forced, to a position of considerable prominence and influence in the oil marketing business. It has 200 members in nine states, doing a gasoline business of more than 100,000,000 gallons a year, it is said.

Perhaps another reason is the fact its directing heads are themselves all actively engaged in the business of marketing oil products. No outsiders are suggesting to member companies how they shall spend their money. De-centralization is carried to the greatest possible degree in this organization. "Run your own business," might well be its motto.

Questions that do come up to directors and its interstate board from Dixie members on new marketing problems and so on are answered out of some oil company's actual experience in meeting that same problem, "What are you doing?" is the question that goes the rounds when such questions come up.

Dixie Distributors is, in reality, a non-profit organization dealing in trade names and slogans. The only paid executive is the girl secretary of the Interstate board at Ann Arbor, Mich., drawing a nominal salary. In fact, the whole organization is shy on officers and titles. Paul R. Kempf, chairman of the Interstate board, does a great part of the paper work for the Dixie group; but he does it from his office with the Staebler Oil Co. at Ann Arbor and we suspect he does some of it at least on Staebler Oil Co. time.

What the Dixie Distributors has to offer the independent oil marketer is the privilege of being in good company among other marketers over a wide section of the country; the right to sell gasoline and motor oil to specifications under a brand name advertised widely enough so that it has created a consciousnes of its existence on the part of motorists; exchange of coupons with member companies; the opportunity to secure the discounts on equipment, advertising novelties and so on that the larger companies enjoy, through co-operative purchasing.

The Dixie organization does not indulge in co-operative buying of petroleum products. It sets up specifications which call for the selling by the member oil company of very acceptable products, and, by the way, it has the benefit of good technical advice in the drawing of those specifications. It has always left to the individual oil company the choosing of its own sources

of supply for its oil products and the selection of the conditions under which it buys. Policing is done at regular intervals, through collection and analysis of samples, to insure that members over the country live up to the standard specifications. Certain Dixie distributors in one state, Michigan, consolidate their buying of petroleum products, but this purchasing is not done in the name of Dixie.

The co-operative advertising feature that keeps the slogan "The Power to Pass; That's Dixie Gas" before the motorists in many states now is obtained through a clause in the individual state franchise of the Dixie group, providing for payment by each member of a certain tax per gallon into the state fund. The amount of the tax varies from three tenths of a mill per gallon of gasoline sold to one mill, which is equivalent to $10 on a 10,000 gallon car. The money collected is used at the discretion of the state organization for supporting various collective advertising plans.

As the Dixie organization grew by states—nine states have franchises now, Michigan, Ohio, Illinois, Wisconsin, Missouri, Iowa, Kansas, Nebraska and Colorado—the need arose for some central board or committee which could act as a clearing house for members in the interests of uniformity.

So an Interstate board was formed, with one representative appointed by the group in each state. Decentralization of authority is maintained, however. The board does very little except act as a clearing house for members in the interest of uniformity of policy on points where it is advisable. The board meets twice a year. It has been in existence two years.

"To understand Dixie, let me tell how it originated," Mr. Kempf told Indiana jobbers at a meeting several weeks ago. "L. V. White, of Kalamazoo, who died a short time ago, was the first man to use the name. He operated in one county in southwestern Michigan. A friend of his, operating in another county, was selling gasoline under his own name and so the advantages of coupon interchange and the idea of a common name came into being.

"About the same time a half dozen of the rest of us who had been in the oil business for some time became pretty much disturbed by the turn events were taking. Our own company had started out distributing the products of a major company and had our market stolen away from us by an arbitrary margin, after we had successfully built up some considerable business in the brand.

DIXIE STATE OFFICERS

MICHIGAN—President, J. Wallace Gehrken, Monroe Co-operative Oil Co., Monroe.
Vice President, J. J. Theisen, Theisen-Clemens Co., St. Joseph.
Secretary-Treasurer, Paul R. Kempf, Staebler Oil Co., Ann Arbor.

OHIO—President, John J. Klay, Parks-Klay Co., Lima.
Secretary-Treasurer, J. R. McElroy, Pearl Oil Co., Bowling Green.

ILLINOIS—President, Elmer E. Wahls, Chenoa.
Vice President, E. B. Friend, Gold Star Oil Co., Havana.
Secretary-Treasurer, H. W. Renfrow, Tulsa Oil Co., Springfield.

WISCONSIN—President, E. H. Riggs, Whiting-Riggs Oil Co., Ripon.
Vice President, H. G. Cross, Waupun Oil Co., Waupun.
Secretary-Treasurer, R. H. Downes, Cook & Brown, Oshkosh.

MISSOURI—President, R. W. Blair, Lincoln Oil Co., Troy.
Secretary-Treasurer, E. C. Masdon, Home Oil & Gas Co., Caruthersville.

IOWA—President, W. J. Garrett, Garrett Oil Co., Oskaloosa.
Vice President, W. M. Kaloupek, Home Oil Co., Grinnell.
Secretary-Treasurer, J. A. Dennis, Iowa Independent Oil Co., Knoxville.

KANSAS—President, W. L. Glidden, Glidden Oil Co., Clay Center.
Secretary-Treasurer, Art F. Geyer, Waterville.

NEBRASKA—President, O. J. Shaw of the Lincoln Oil Co., Lincoln.
Vice President, S. A. Wassum, Tekemah Oil Co., Tekemah.
Secretary-Treasurer, Ed Neustrom, Service Oil Co., Kearney.

COLORADO—President, Brayton Armstrong, Sentry Oil Co., Denver.
Vice President, W. K. Carroll, Carroll Oil Co., Pueblo.
Secretary-Treasurer, J. Kessler, Diamond Gas & Fuel Co., Denver.

"As a result, we had introduced our own brand of gasoline, using our own name. In 1927 things began to look pretty black for both types of operators—those who sold a national brand of goods and those who sold local brands of their own. About this time national advertising began on a large scale and the jobber was becoming 'brand conscious', and it was fast becoming apparent that a local brand, sold only in a 20-mile radius, could not begin to compete with either home town customers or transients against brands that could be obtained all over the motoring territory."

Faced by this situation, said Mr. Kempf, seven or eight marketers in Michigan came together to form Dixie Distributors, to obtain for themselves:

1—Continued ownership of a common brand in respective territories.

2—Common identity.

3—Uniform products.

4—The pooling of advertising purchases.

"To set up an organization free from the weaknesses of other voluntary associations, we determined that we must avoid an expensive central organization; that we must give our members entire freedom where they chose, as long as they observed the specifications of our products; and finally to provide our members with full assurance of retaining their franchises as long as they lived up to the by-laws of the organization," said Mr. Kempf.

After two years, in which Dixie Distributors grew to be the third largest distributor of gasoline in Michigan, Wisconsin appealed to the Michigan group for a franchise. Other states followed, at present nine have Dixie franchises. Oklahoma and Minnesota groups of marketers are considering coming in. Other states have requested information as to the steps to be taken.

In the organization of groups in other states, the parent Michigan group grants a franchise to a group of marketers in another state. The group pays a $500 franchise fee and submit financial statements of the proposed member companies and any other desired information as

The PARADOX of Pour Point

PARAFFINE base is synonymous with general high quality. But paraffine base oils are high pour oils. High pour point is a danger signal. At temperatures below the pour point lubrication fails.

The answer to the paradox is

PARAFLOW

(A product of Standard Oil Development Co.)

which, without removal or change of the paraffine hydrocarbons, to which high quality is largely due, prevents them from crystallizing at low temperatures and converting the oil to a solid.

Used in the proportion of ¼ % to 1½ %, PARAFLOW reduces the pour point of such lubricants from 20°F. to 40°F., without the need of expensive equipment.

PARAFLOW

FOR FULL PARTICULARS AND PRICE SCHEDULE, ADDRESS INQUIRIES TO

PARAFLOW • P. O. BOX 481 • ELIZABETH, N. J.

Paul R. Kempf, of the Staebler Oil Co., Ann Arbor, Mich., Interstate chairman of the Dixie Distributors

to the standing of the individual companies. The corporate group, upon the granting of a state franchise, in turn is empowered to grant franchises to individual member companies, covering these points:

1—Use of the trademark and slogan.

2—The minimum specification for gasoline and oil.

3—Conformity to the distinct type of Dixie advertising.

4—Provision that the franchise becomes void if the local member sells out or goes bankrupt.

5—Providing for the payment of a certain tax per gallon to be paid into the state fund, proceeds to be used for co-operative advertising.

In many cases the individual member obtaining a franchise pays $100 when he comes into the organization, this being practically returned to him in the form of initial advertising on his turning away from his own or other brands to Dixie. Each state organization pays $46 a month to the support of the Interstate office and its functions.

NEW STATIONS BUILDING

Note: Material used in this column is taken principally from newspapers. NATIONAL PETROLEUM NEWS assumes no responsibility for its accuracy. Headquarters of companies and addresses of individuals are given wherever possible.

The list as published from week to week cannot be looked upon as indicative of the relative extent to which stations are being built in various parts of the country.

Service Stations

Hartford, Conn.—Ervin G. Barrett, 171 Wethersfield Ave.

Wilmington, Del.—Standard Oil Co. of New Jersey, 26 Broadway, New York, N. Y.

Lebanon, Ky.—Mr. Arthur Wilkinson, Proctor Knott Ave. and Mulberry St.

Carlisle, Ind.—P. D. Watson, Highway No. 58.

Jeffersonville, Ind.—Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill.

Oak Park, Ill.—Holmes and George H. Forsyth, 121 Forest Ave.

Vincennes, Ind.—Theodore Charles, State and Fairground Ave.

South Bend, Ind.—Gafill Oil Co.

Culver, Ind.—William Baldwin.

Virginia, Ill.—Phillips Petroleum Co., Bartlesville, Okla.

Kerrville, Tex.—Magnolia Petroleum Co., Magnolia Bldg., Dallas, Tex.

Temple, Tex.—E. K. Williams.

Van Buren, Ind.—Homer Powell.

Delphos, O.—Delphos Oil & Gas Co.

De Pue, Ill.—William and Carleton Goering, Seatonville, Ill.

Fostoria, O.—Standard Oil Co. of Ohio, Midland Bank Bldg., Cleveland, O.

Grand Blanc, Mich.—Stuart Cheney, Saginaw St.

Covington, O.—Sun Oil Co., 1608 Walnut St., Philadelphia, Pa.

Omaha, Neb.—Continental Oil Co., Ponca City, Okla.

Covington, O.—James J. Jusar, E. 185th St.

St. Paris, O.—C. E. Vandeford, Urbana, O.

Troy, O.—George Weeks, S. Market St.

Covington, O.—Great Western Oil Co., 2846 E. 37th St., Cleveland, O.

Highland, Wis.—Lewis Matthews.

Bloomington, Wis.—D. C. Horton, Grant-Crawford Co-Operative Oil Co.

Rice Lake, Wis.—Farmers' Union Co-operative Oil Co.

Hawarden, Ia.—Cambier Motor Co.

Oskaloosa, Ia.—Continental Oil Co., Ponca City, Okla.

Marengo, Ia. — Phillips Petroleum Co., Phillips Bldg., Bartlesville, Okla.

Decorah, Ia.—Johnny Ellingson.

St. Ignace, Mich.—Adam McGregor.

Nashville, Tenn.—Phillips-Acuff Tire Co.

Newark, O.—Liberty Oil Co.

Bradford, O.—R. E. Perry, Miami Ave. and Main St.

New Haven, Conn.—Links & Links, Crown and High Sts.

North Adams, Mass.—A. J. Witherell, 27 State St.

New Haven, Conn.—Nushan Kolligian, 665 Orchard St.

Roanoke, Va.—Standard Oil Co. of New Jersey, 26 Broadway, New York, N. Y.

Fort Myers, Fla.—L. C. Hibble, Anderson Ave. and Fowler St.

Providence, R. I.—Michael A. Traficante, 669 Harris Ave.

Winder, Ga.—Wofford Oil Co., 140 Spring St., Atlanta, Ga.

Providence, R. I.—Standard Oil Co. of New York, 26 Broadway, New York, N. Y.

Baltimore, Md.—Thomas F. Leonard, 3615 Brehm's Lane.

Providence, R. I.—Florence E. Avery, 716 Hartford Ave.

Chattanooga, Tenn.—Wofford Oil Co., 140 Spring St., Atlanta, Ga.

Providence, R. I.—Rhode Island Ice Co., 251 Reservoir Ave.

Columbus, O.—Sinclair Refining Co., 45 Nassau St., New York, N. Y.

Columbus, O.—Mrs. Garcia Ulrey, 2316 Cleveland Ave.

Edgewood, Pa. — C. B. Johnston, Maple and Edgewood Aves.

Ashland, Wis.—M. J. Bell.

Henry, Ill.—A. B. Child & Sons Service.

Libertyville, Ind.—Chris Jensen.

Mendota, Ill.—E. J. Kreis.

Fremont, O.—Fremont Oil Co.

Greenburgh, N. Y. — Sampson L. Warner, Tarrytown Rd.

New Britain, Conn.—Dominic Soccoli, 475 Arch St.

Danbury, Conn.—Louis De Flumeri, Danbury-New Milford Rd.

Dunton, N. Y.—Ella Leshnower, Van Wyck Blvd. and 101st Ave.

Arcola, N. J.—C. Pantella, New State Route No. 4.

Fort Dodge, Ia.—Mid-Continent Petroleum Corp., Cosden Bldg., Tulsa, Okla.

Newington, N. H.—New Hampshire Oil Co., Islington St., Portsmouth, N. H.

Holdrege, Neb.—William Trenchard, Cambridge, Neb.

Elkhart, Ind.—Aldis Haight.

Manton, Mich.—Frank Stosick.

Marshall, Mich.—Sun Oil Co., 1608 Walnut St., Philadelphia, Pa.

Richland Center, Wis. — Richland Gasoline Co.

Canton, Ill.—Walter Landis.

Beloit, Wis.—Progressive Oil Co.

Malta Route Two, O.—James Bump.

Fithian, Ill.—John Smoot, Collison, Ill.

Patriot, Ind.—Lloyd Bunger.

Rochester, Minn.—Standard Oil Co. of Indiana, 910 S. Michigan Ave., Chicago, Ill.

Medford, Wis.—E. A. Pongratz, Taylor County Oil Co.

Colby, Wis.—Edward Witte.

Decorah, Ill.—John Ellingson.

Fremont, Neb.—Will Wilderson and Will Harper.

Celina, O.—The Texas Distributing Co., 2501 West 3rd St., Cleveland, O.

Hill City, S. D.—Workman A. Scott.

Merrill, Wis.—The Texas Co., Houston, Tex.

Little Rock, Ark.—Eugene M. Pfeifer, Mechanics Lumber Co.

Edgerton, Mo.—G. Wise, Trimble, Mo.

New England, N. D.—Harley Smith.

Park Falls, Wis.—Charles Taylor, Island Lake Fur Farm, County Trunk G.

Bulk Stations

Newington, N. H.—New Hampshire Oil Co., Islington St., Portsmouth, N. H., deep water storage.

Minneapolis, Minn.—Farmers Union Co-Operative Oil Co., Salina, Kan., plans to build.

Baldwin, Wis.—St. Croix Co-operative Oil Co.

Burlington, Ia.—Home Oil Co.

Rumford, Me.—E. M. Bessey, Box 9, Rumford.

Baldwin, Wis.—St. Croix Co-Operative Oil Co.

Niles Center, Ill.—Phillips Petroleum Co., Bartlesville, Okla.

Rock Island, Ill.—Phillips Petroleum Co., Bartlesville, Okla.

Merchandising and Jobbing Ideas Marketers Are Using

By E. L. Barringer
N. P. N. STAFF WRITER

MOUNTING tires, and installing batteries sold by chain stores is profitable for the Casey Oil Co., Mitchell, S. D. The station sells tires, too, but, if prospective tire customers want to buy at Montgomery Wards, or Gambles, the station can also make a profit on that sale.

These chain stores have no facilities for installing this type of merchandise, so the customers are sent over to the Casey station. The customer brings an order from the store, the work is done without cost to him, but the station is paid 25 cents by the store for each installation.

This service also has its indirect benefits. One of these contacts recently led to a car heater sale. A farmer came to the station, asking about hot water heaters for his car. He said that, more than year previously, he had been in the station to have a chain store tire mounted and remembered seeing a heater on display.

* * *

Why Station Operators Age Prematurely

There is a story making the rounds at Pierre, S. D., that reaffirms our industry's faith in the old-line anti-freeze solutions. It seems a newcomer to Pierre was being told about a spring that had never been frozen in winter. The newcomer reasoned, if the water from this spring never froze, why not use it in the radiator. He did, so there is another convert to the conventional solutions.

J. Howard Pile, editor of Chek-Chart, tells an actual experience along this line. Some years ago Mr. Pile was operating a one-stop station near New York. A local business man brought his car in to have the radiator conditioned for winter driving.

The radiator was filled with a solution to last the entire winter, and the customer's bill came to around $8 The morning after the first cold wave the customer returned to the station. It seems he thought the anti-freeze solution would keep his engine warm, and that morning he found the cylinder block just as cold as if no anti-freeze had been used.

* * *

Give Me 5-Gallons and 50 Pounds of Ice

Ice companies in Flint, Mich., do not deliver from door-to-door. Instead, retail distribution is obtained through small ice houses located all over the city, and the most natural place for these of course is at the neighborhood service station. In fact, a station in the residential sections of the city does not look natural unless it has the ice house along the drive.

The handling of ice is profitable to the station. E. W. Manns, general manager, James Austin Oil Co., Flint, tells of one dealer selling 250 tons in three months last summer. The station nets $3 a ton.

* * *

Brownell Block Men Now On Commission

To stimulate the merchandising efforts of its salesmen, the Brownell Oil Corp., Sioux Falls, S. D., has placed its block men on commissions. Their pay now is in commissions on sales through company stations and dealer outlets in their territory.

The "block man" is a salesman peculiar to marketing organizations in the middle west. He is salesman, collector, and supervisor of service stations, and has definite charge in a given area. He works with the local agent, but is not the "boss" of the agent.

Employes at most of the Brownell stations were on commissions previously, so the organization now is almost 100 per cent on this basis.

The Brownell company distributes Barnsdall products, and the block men are not in charge of merchandise sold to regular jobbers. These jobbers manage their own company, and the Brownell block man has charge only of his company's own stations, and outlets served by Brownell bulk plants.

Records of sales since the change are not available yet, but the block men were enthusiastic over the plan and were more alert to see the bulk plants and service stations in their territory sell more products, since every sale to a consumer now means actual cash in their pocket.

* * *

James Austin Oil Co., Flint, Mich., is proud of the national prominence given its letterhead. The trade publication "Postage And The Mail Bag" has a department for rating the appearance of letter-heads. In a recent issue the James Austin company's stationery rated 90 per cent.

The letter-head has a cut of the two-colored Shell "shell" in a square design with a black background. The first line beneath has the company's name in full, the second line the street and city address.

* * *

Marketers in eastern Michigan prevent undue wear on gasoline pump hose as it drags over the concrete block by slipping four or five rubber washers over the hose, several inches apart, to prevent wear at the bend that normally would drag on the concrete.

Crankcase Cleaning Offers New Field for Station Profits

CLEVELAND

FLUSHING automobile crankcases before refilling with fresh oil is a profitable, undeveloped service for stations, also profitable to the car owner through better performance of the engine thus secured.

This service is comparatively new, and merchandising ability on the part of the station salesman is necessary to make it profitable. The oil company receives its financial return through the sale of the flushing oil and the sale of other services or commodities through the merchandising that can be done in a demonstration of the machine.

To assist the station salesman in merchandising this service a machine has been developed under the trade name Klenzmotor, which circulates the flushing oil through the crankcase with the motor running and filters the oil before returning it to the crankcase. It is made by the S. F. Bowser & Co. Inc.

The machine is an asset in actually circulating the flushing oil, but its greatest value is its merchandising possibilities.

A Klenzmotor machine has been in operation since the first of the year at a Firestone station in Cleveland, and its service really merchandised by a special retail salesman for the rubber company. Three representatives of NATIONAL PETROLEUM NEWS recently drove into the station to buy this service. They did not identify themselves until the close of the sale, so the salesman's showmanship was not staged.

After the automobile was on the lift, and a station employe had started to drain the crankcase, the special retail salesman for the tire company began merchandising. He told, briefly, the principal of its operation. How the machine drew the flushing oil from the pan beneath of the outlet on the crankcase. How the oil was pulled into the machine through the filter, and back into the engine through the oil fill pipe. Then he told of the second filter, for kerosine in cleaning transmissions and differentials, how the change in lines was made, and that the second filter was to keep both cleaning agents separate so no kerosine would get into the crankcase when flushing oil was used.

A new bag was placed in the filter to show the customers the grit and particles taken from the crankcase. At the end of the cleaning the bag was removed and the salesman had the customer feel the dirt, also the grit in the pan beneath the crankcase opening.

When the flushing oil was placed in the pan the salesman again told how the oil was taken into the machine and circulated, and he explained also that several quarts were placed in the crankcase so the motor would have lubrication when it was started.

While the Klenzmotor machine was operating the salesman continued to merchandise. He had four small bottles, long and slender, much the shape of carpenter's pencils, in a bag made of one of the filters.

Each bottle was taken from the bag as the salesman told about the oil. One bottle had a sample of the flushing oil used. Another bottle had crankcase drainings. Another had a sample of oil driven about five miles when the crankcase was refilled without Klenzmotor cleaning. And the fourth bottle had a sample of similar oil, driven about five miles, but the crankcase had been cleaned before being refilled.

At the conclusion of the purchase the salesman inquired about the refill oil, and mentioned the highest priced oil in the station first.

Among the oil companies merchandising crankcase cleaning is the Standard Oil Co. of Indiana. This company has advertised by letter, and charges 80 cents for cleaning, the price of the flushing oil.

The amount of oil required for cleaning is two quarts more than the crankcase capacity, and the charge figures out about 10 cents a quart. The machine circulates the oil at the rate of about six gallons a minute.

Crankcase cleaning provides a new market for the sale of flushing oil, and service of real benefit to the car owner, but for the station to make a success the service has to be merchandised.

Tiona Perpetuates Oil Scout History in Book

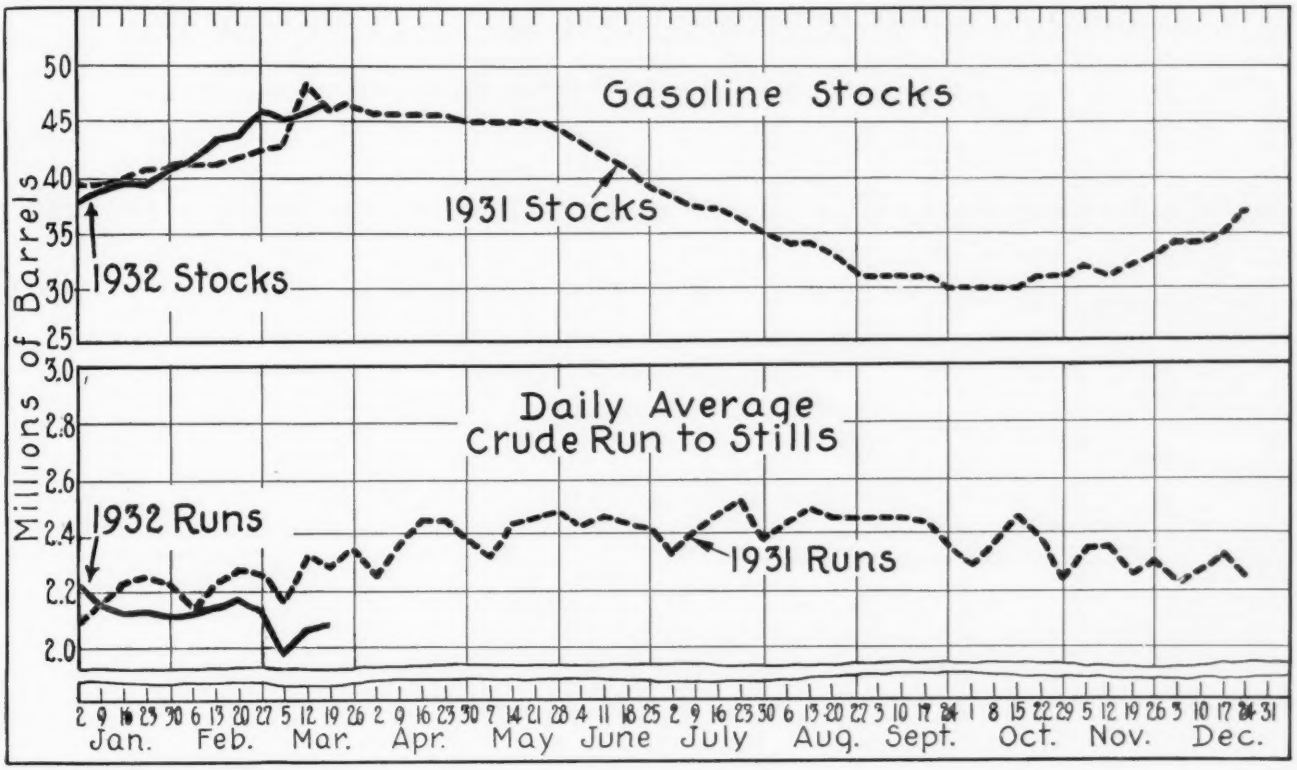
PHILADELPHIA, Feb. 27.—Reminiscences of the "night riders of the Hemlocks" as oil scouts were called way back when Pennsylvania oil fields were at their height of activity, have been gathered into an interesting book by the Tiona Petroleum Co., Philadelphia. The book was originally written by James C. Tennent, one of the early scouts of the 70's and 80's who now lives at Caledonia, N. Y.

It has been reprinted by the Tiona in attractive black covers, with the Tiona Indian-head trade-mark and name embossed in silver on the front cover.

"The Oil Scouts," besides containing the color and history of the early days in the Pennsylvania fields, particularly tells the story of the scout. "The purpose of the scout," the book says, "was to checkmate false rumors started by market-breakers to influence prices on the 'change, invariably associated with bear movements originating with cliques in the Oil Exchange. With the scouts on duty rumors . . . did not get far enough to do any damage and panics were not possible . . . the scout saved the general trade thousands and millions by holding market manipulators in check."

NEW YORK.—L. Mittelman, chief chemist at the Avon refinery at Associated, Cal., for the Associated Oil Co., San Francisco, has been appointed a member of the American Petroleum Institute's committee on disposal of refinery wastes.

U. S. Crude Runs and Gasoline Stocks as Reported Weekly by A. P. I.



Refinery Gasoline Stocks Increase 767,000 Barrels

STOCKS of gasoline were increased 767,000 barrels in the week ended March 19 at refineries which report weekly to the American Petroleum Institute.

Stocks of gasoline in water borne transit and in bulk water terminals east of California increased 296,000 barrels also. This makes a net increase in bulk gasoline stocks of 1,063,000 barrels. In the week ended March 12 total bulk stocks were increased 540,000 barrels while in the first week of March there was a small reduction in stocks.

A further tendency to increase crude runs to stills was evident during the week, although the increase was far less than in the second week of the month. Runs rose 21,300 barrels daily average as compared with 95,400 barrels daily average in the week ended March 12. Runs for the week utilized 56.9 per cent of the rated still capacity of reporting plants. In the first week of the month runs dropped to a new low of 53.7 per cent of capacity.

Chief increases in crude runs were reported by California and Oklahoma-Kansas refiners. California refiners enjoyed an upturn in gasoline demand which allowed them to reduce their gasoline inventories 122,000 barrels in spite of an increase of 46,600 barrels daily average in crude runs to stills. This was the only area to draw on stocks during the week.

Current Refinery Operations

Districts	Per Cent Capacity Reporting	Daily Average Crude to Stills (Barrels) Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Stocks (Thousands of Barrels)				Cracked % of Total Capacity Reporting	Gasoline Production Daily Av. Production (Barrels) Week Ended	
		Mar. 19	Mar. 12	Mar. 19	Mar. 12	Gasoline Mar. 19	Gasoline Mar. 12	Gas & Fuel Oil Mar. 19	Gas & Fuel Oil Mar. 12	Mar. 19	Mar. 19	Mar. 12
East Coast	100.0	423,300	425,100	66.8	67.1	6,833	6,708	5,944	6,293	94.1	82,600	82,600
Appalachian	91.8	91,500	89,900	66.6	65.4	1,865	1,810	1,148	1,149	96.1	26,400	27,700
Ind., Ill., Ky.	98.9	252,000	269,600	58.4	62.5	6,080	5,887	4,103	4,224	95.5	86,100	78,400
Okla., Kans., Mo.	89.6	230,300	217,300	52.9	49.9	3,885	3,774	2,986	3,091	92.3	49,900	40,000
Texas	91.3	444,700	473,700	58.1	61.9	9,187	8,913	9,420	9,569	96.8	85,700	90,300
La., Ark.	98.9	150,300	143,700	65.2	62.3	1,798	1,688	4,036	3,981	100.0	33,900	31,700
Rocky Mountain	89.4	32,600	30,700	22.7	21.3	1,986	1,965	657	671	98.5	8,100	11,200
California	97.1	460,300	413,700	51.8	46.6	14,794	14,916	95,826	96,045	100.0	40,000	40,000
Total	95.2	2,085,000	2,063,700	56.9	56.3	46,428	45,661	124,120	125,023	95.6	412,700	401,900
Texas (Gulf Coast)	99.8	355,600	380,600	66.9	71.6	7,469	7,134	6,754	6,849	98.6	67,000	70,300
La. (Gulf Coast)	100.0	105,300	95,700	71.4	64.9	1,660	1,551	3,370	3,302	100.0	24,700	23,400

Compilation Of Mid-Continent Refinery Operations

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Mid-Continent Refinery Operations, Week Ended March 18 (By Teletype)

	Kansas	Oklahoma	North & Cent. Texas	West Texas	North La.-Ark.	Total Week Ended March 18
Plants Reporting.....	10	23	23	10	10	76
Da. Av. Cap. (Bbls.)..	94,000	162,500	107,400	71,500	60,700	496,100
Da. Cracking Capacity	53,200	64,600	23,100	26,250	31,700	198,850
Da. Av. Crude Runs..	59,018 — 3.2	77,319 + 17.3	49,603 — 14.7	11,860 — 6.5	38,525 — 10.2	236,325 — 1.8
Da. Av. Other Oil....	8,889 + 53.1	3,999 + 2,121.7	3,511 — 32.1	....	14,571 + 1.0	30,970 + 21.8
GASOLINE—Gallons						
Stocks, Mar. 11.....	41,787,000	42,942,000	38,923,000	12,433,000	5,861,000	141,946,000
Prod. 3-11 to 3-18....	10,439,000 + 10.3	12,638,000 + 21.9	8,383,000 — 7.5	927,000 — 20.7	6,515,000 + 1.3	38,902,000 + 6.6
Ship. 3-11 to 3-18....	9,822,000 + 17.2	12,935,000 + 5.5	9,435,000 + 35.7	1,627,000 + 53.9	6,043,000 — 4.1	39,862,000 +14.1
Stocks, Mar. 18.....	42,404,000 + 1.5	42,645,000 — 0.7	37,871,000 — 2.7	11,733,000 — 5.6	6,333,000 + 8.1	140,986,000 — 0.7
Ratio Sales to Prod...	94.1%	102.3%	112.5%	175.5%	92.8%	102.5%
KEROSINE—Gallons						
Stocks, Mar. 11.....	8,661,000	7,674,000	2,961,000	39,000	387,000	19,722,000
Prod. 3-11 to 3-18....	2,610,000 + 38.5	1,639,000 + 18.3	902,000 + 2.3	1,000 — 95.2	392,000 — 24.5	5,544,000 + 18.2
Ship. 3-11 to 3-18....	4,274,000 +131.5	2,260,000 + 25.6	1,148,000 + 53.3	....	244,000 — 58.2	7,926,000 + 58.5
Stocks, Mar. 18.....	6,997,000 — 19.2	7,053,000 — 8.1	2,715,000 — 8.3	40,000 + 2.6	535,000 + 38.2	17,340,000 — 12.1
Ratio Sales to Prod...	163.8%	137.9%	127.3%	.....	62.2%	143.0%
STOVE DISTILLATE—Gallons						
Stocks, Mar. 11.....	693,000	3,617,000	80,000	34,000	52,000	4,476,000
Prod. 3-11 to 3-18....	606,000 — 15.1	884,000 +206.9	80,000 — 1.2	....	127,000 + 67.1	1,697,000 + 45.2
Ship. 3-11 to 3-18....	598,000 + 9.9	1,184,000 — 16.4	102,000 + 47.8	21,000 +133.3	122,000 + 71.8	2,027,000 — 3.9
Stocks, Mar. 18.....	701,000 + 1.2	3,317,000 — 8.3	58,000 — 27.5	13,000 — 61.8	57,000 + 9.6	4,146,000 — 7.4
Ratio Sales to Prod...	98.7%	133.9%	127.5%	.....	96.1%	119.4%
GAS OIL—Gallons						
Stocks, Mar. 11.....	3,460,000	15,889,000	5,190,000	882,000	1,890,000	27,311,000
Prod. 3-11 to 3-18....	1,070,000 +472.2	1,333,000 +455.4	327,000 — 66.5	224,000 + 53.4	2,302,000 + 11.6	5,256,000 + 45.5
Ship. 3-11 to 3-18....	806,000 + 14.2	1,037,000 — 20.4	405,000 — 27.0	193,000 — 62.4	2,230,000 + 3.3	4,671,000 — 10.8
Stocks, Mar. 18.....	3,724,000 + 7.6	16,185,000 + 1.9	5,112,000 — 1.5	913,000 + 3.5	1,962,000 + 3.8	27,896,000 + 2.1
Ratio Sales to Prod...	75.3%	77.8%	123.9%	179.9%	96.9%	88.9%
FUEL OIL—Gallons						
Stocks, Mar. 11.....	11,030,000	40,367,000	90,036,000	12,247,000	15,563,000	169,243,000
Prod. 3-11 to 3-18....	4,803,000 + 0.5	4,515,000 + 35.7	5,467,000 — 12.8	2,165,000 — 7.0	3,966,000 — 9.3	20,916,000 — 0.8
Ship. 3-11 to 3-18....	5,101,000 + 9.3	5,344,000 + 61.5	8,383,000 + 42.2	3,247,000 + 32.4	3,638,000 — 40.6	25,713,000 +14.5
Stocks, Mar. 18.....	10,732,000 — 2.7	39,538,000 — 2.1	87,120,000 — 3.2	11,165,000 — 8.8	15,891,000 + 2.1	164,446,000 — 2.8
Ratio Sales to Prod...	106.2%	118.4%	153.3%	150.0%	91.7%	122.9%

Gasoline Produced by Various Methods, Week Ended March 18

	Kansas	% of Total	Oklahoma	% of Total	North & Cent. Texas	% of Total	West Texas	% of Total	Louisiana-Arkansas	% of Total	Total	% of Total
Straight Run.....	6,262,000	60.0	7,461,000	59.0	4,634,000	55.3	810,000	87.4	3,083,000	47.3	22,250,000	57.2
Cracked.....	3,268,000	31.3	4,074,000	32.2	3,105,000	37.0	68,000	7.3	2,778,000	42.6	13,293,000	34.2
Natural.....	909,000	8.7	1,103,000	8.8	644,000	7.7	49,000	5.3	654,000	10.1	3,359,000	8.6
Total.....	10,439,000		12,638,000		8,383,000		927,000		6,515,000		38,902,000	

+ or — columns are % change over previous week.

Mid-Continent Refiners Cut Gasoline Stocks

Staff Special—By Teletype

TULSA, March 15

GASOLINE stocks were reduced at Mid-Continent refineries during the week ended March 18 as shipments rose substantially according to reports gathered by NATIONAL PETROLEUM NEWS.

Gasoline shipments increased 4,900,000 gallons during the week. Every district except North Louisiana and Arkansas lowered inventories. To care for the increased demand refiners increased their output 2,400,000 gallons and drew 1,000,000 gallons of gasoline from storage.

Shipments of kerosine increased 2,900,000 gallons during the week. Production was increased 600,000 gallons, but refiners were able to reduce their inventories 2,400,000 gallons.

Stocks of stove distillate and fuel oil were reduced during the week but gas oil stocks rose slightly.

Refiners reduced their charges of crude oil to stills but increased runs of partly refined oils.

Summary for the Month

Production and shipments, all reporting refineries, for four weeks ended March 18. Change in stocks figured from February 19.

GASOLINE

	Gallons
Production	144,416,000
Shipments	152,180,000
Net change in stocks	—1,054,000
Ratio sales to production	105.3%

KEROSINE

Production	18,873,000
Shipments	21,041,000
Net change in stocks	—1,115,000
Ratio sales to production	111.4%

STOVE DISTILLATE

Production	4,550,000
Shipments	7,323,000
Net change in stocks	—1,609,000
Ratio sales to production	160.9%

GAS OIL

Production	16,128,000
Shipments	20,025,000
Net change in stocks	—1,242,000
Ratio sales to production	124.1%

FUEL OIL

Production	81,207,000
Shipments	88,840,000
Net change in stocks	—1,094,000
Ratio sales to production	109.3%

New Books

Oil Economics: The Application of Economic Facts and Principles to the Problems of Management and Investment in the Petroleum Industry. By Campbell Osborn.

In this work, Mr. Osborn, an attorney practicing in Tulsa, brings together the material which he has collected over a period of about 20 years. His labors in the field of petroleum economics is well known. Years ago he organized the monthly economic service of the Department of the Interior, directed it, later set up and directed the economics department of a major oil company.

Mr. Osborn begins his book with a discussion of oil economics and its relation to management and investment. Much historical data are given to supply the background for his conclusions on determining proper policies in field, transportation, refining, sales and storage policies. There seems to be proper analysis of the present situation of the industry, regionally and as a whole. There is an interesting chapter on reserves of petroleum, more in the nature of possibilities than a commission of the frequent error committed by some economists of setting up hard and fast estimates which are soon shown to be unsound.

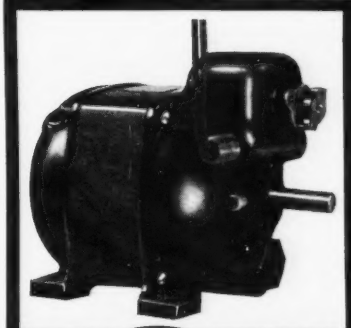
Of especial interest is the chapter on demand, supply and price. Here are restated several fundamentals which many in the industry seem to have forgotten in recent years. In its application to the oil industry, Mr. Osborn states the law of supply and demand quite simply. Long ago learned out of the experience of men, it has latterly been almost forgotten in the endeavor to find in political control the magic formula that would negative the operation of the law. Here it is:

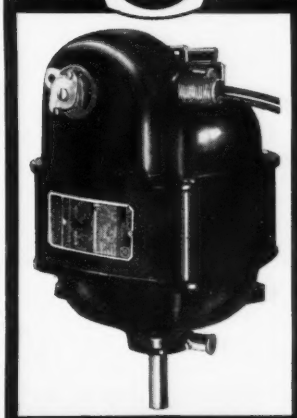
"Mounting prices stimulate leasing and drilling, increase production and refining, and reduce consumption; falling prices retard leasing and drilling, ultimately reduce production and refining, and stimulate consumption."

Among other subjects treated are the following: Function of Oil Economics; Financial Structure of the Industry; Crude Oil Producing Costs and Substitutes; Transportation and Storage; Oil Refining and Manufacturing; Marketing of Petroleum and Its Products; Economic Balance of an Oil Company; Natural Gas Industry; Economic Control of Operations; Valuation of Oil and Gas Lands; Oil Securities; Foreign Petroleum Conditions; Conservation of Oil and Gas.

The book has 402 pages, profusely illustrated with charts and maps. It may be obtained from NATIONAL PETROLEUM NEWS; price, $4.00 per copy.

300,000 Explosion-Resisting MOTORS . . . . have gone out from the LELAND FACTORY





"We progress through change." Therein lies the priceless ingredient of success in manufacture of totally enclosed motors for use in explosive atmospheres.

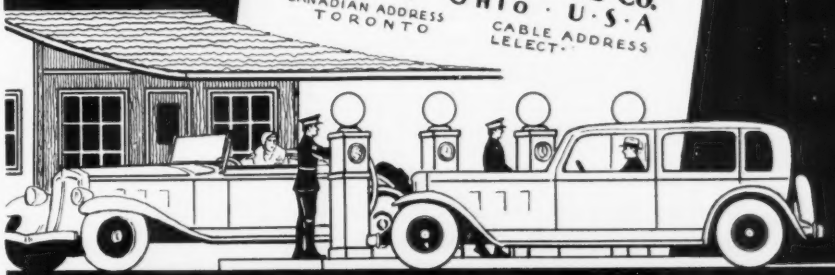
Nine years ago this particular Leland design pioneered in the gasoline dispensing field. For nine years it has led in applications to the best makes of gasoline pumps.

An objective of intensive study ever since its introduction, this highly specialized motor has gradually undergone change in the interests of still more effective operation and still greater general safety.

As an intelligently directed evolution from the original design, it is today regarded as the most advanced of all explosion proof motors on the market. Verily we do "progress through change".

Inquire about the latest Leland development—the new built-in thermal protector.

THE LELAND ELECTRIC CO.
DAYTON · OHIO · U·S·A
CANADIAN ADDRESS TORONTO
CABLE ADDRESS LELECT.



Leland vapor-resisting Motors

SKILLED SUPERVISION

Guarantees the Quality of Gulf Products

COASTAL AND PARAFFINE CRUDES
GASOLINE—LUBRICATING OILS
NAPHTHA—GAS—OILS
WAX—PETROLEUM COKE
CYLINDER—ENGINE—CORDAGE

Gulf Refining Company

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PITTSBURGH, PA.

District Sales Offices: New York, Boston, Philadelphia, Louisville, Atlanta, Houston, New Orleans

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Indiana Jobbers To Blast Away at Taxes

INDIANAPOLIS, March 19.—Fireworks will be in the air against the recently proposed federal tax of 1 cent per gallon on gasoline (now apparently killed) and 4 cents on lubricating oils now before the House at Washington, and a proposed 1 cent increase in the Indiana gasoline tax, when the Indiana Petroleum Association meets April 14 at the Hotel Severin here.

The association has adopted a vigorous campaign against these taxes under the direction of Max L. Wickersham, executive secretary. A "protest" blank is being made available to all oil companies, tire companies, truck associations, etc., to be turned over to service station salesmen and dealers who will call the attention of motorists to these proposed tax increases, and ask them to sign the protest. Three hundred thousand signatures are required for the blanks which will be sent to Washington.

In addition to a plan to be formulated to combat adverse legislation in the next assembly in Indiana, other subjects to be discussed include the preparation of an oil inspection law to eliminate tax evasion and underground blending with tax free petroleum products; preparation of a bill to combine the oil inspection, fire marshal, state police, weights and measure, and the gasoline tax collection departments under one head; preparation of a bill to reduce the state's gasoline tax to 3 cents (now 4 cents), but to include naphtha, kerosine, distillate, lubricating and fuel oils, giving the state the same revenue but reducing the tax on the motorist.

In a special bulletin mailed out by Mr. Wickersham to jobbers, he points out to the motorist that he pays between $50 and $80 per year in gasoline taxes; and that, with the proposed federal taxes on gasoline and lube oils, he will pay nearly a half cent per mile in taxes.

Correction

On Page 38 of the March 2 issue was given an example of the method of using the new volume correction tables developed by the U. S. Bureau of Standards. In this, due to typographical error, it was said that 10,000 times 0.9813 equals 813 gallons. This, of course, should have read 9813 gallons.

WALHALLA, S. C.—George L. Wilson & Son, for eight years agent for the Standard Oil Co. of New Jersey here, operate two service stations at Walhalla.

Mr. Wilson's merchandising ideas include advertising in which equipment and service are featured. His headquarters are the official A. A. A. for Walhalla.

Refinery - Tank Wagon Markets

Cold Weather Hampers Tank Car Trading; Cargo Markets Turn Active

CLEVELAND, March 21

CONTINUED cold weather hampered trading in petroleum tank car markets during the week of March 14-19. Light oil prices held their ground fairly well, however; lubricating oils were hurt more by the inclement weather.

Cargo markets came to the foreground from the standpoint of activity and prices of both light and heavy oils made slight gains. This activity, however, reflected little improvement in consumer demand.

While a good portion of the cargo business transacted last week was more or less of a contract nature, the volume of open market trading was greater than it has been for some time past. East coast resale agents were reported to have purchased around six cargoes of California gasoline on consignment over the balance of the year. Three cargoes of gasoline also were purchased at the Gulf by eastern companies. United Kingdom buyers took three cargoes of bunker oil from the Gulf and a French buyer inquired late in the week for an 85,000-barrel cargo of 64-66, 375 end point gasoline. Of the nine cargoes of gasoline, two went to a consumer-buyer and will not appear again in the usual gasoline market channels. The buying had a most beneficial effect on sentiment in cargo market circles, heavy oil prices advanced 2 cents a barrel and gasoline quotations were up 0.25 to 0.5 cent a gallon.

FOR your own business welfare, as well as for business generally, encourage profitable prices when you buy—

Because you want profitable prices when you sell.

You cannot sell your products at a profit, if the man who sells you has to do so at a loss.

This applies both to petroleum products and equipment.

Editor

The cold weather put a crimp in gasoline buying in tank car markets but prices showed few, if any, recessions in any part of the country. On the contrary prices of some grades advanced slightly in the Mid-Continent and along the Atlantic seaboard.

Spring buying of motor oils has been slow in getting under way. Buyers have held back in stocking up until they are certain there will not be wide recessions from the higher prices established last month. Pennsylvania bright stock and neutral oil prices reacted slightly last week but the trade generally did not look for the market to suffer a severe setback. Mid-Continent oils also were down slightly.

Burning oils were moderately active in all markets.

Gasoline Price Rise Halted at Chicago

Staff Special

CHICAGO, March 19

SPOT market gasoline prices, which had been moving upward rapidly for the past few weeks, slowed down considerably in the Chicago market in the week ended March 19, although exhibiting few, if any, tendencies toward a decline.

Traders generally attributed this cessation in advancing prices to a lack of jobber buying and a reluctance on the part of some refiners to move their prices higher until all long or distress gasoline was taken off the market. Several resellers, who earlier in the month had purchased for shipment over March still had some gasoline to offer and in view of the light demand they were more of a factor in the market than they had been when buying was good.

Another factor in the dullness of the refined gasoline market was the fact that considerable blending evidently was being done by jobbers. Demand both for natural gasoline and naphtha was reported improved. Several sellers said that it was quite difficult to buy a good blending naphtha for prompt shipment. Natural gasoline prices also were higher, according to reports from Oklahoma and Texas.

Spot gasoline prices were unchanged on some grades and up 0.125 cent on others by the end of the week.

Summary of Group 3 Quotations for U. S. Motor Gasoline

In Effect March 21, 1932

	Below 57 Octane No.	57-65 Octane No.	Above 65 Octane No.
Okla.	3.625-3.75	4.00-4.25	4.125-4.375
Kans.	3.625-3.75	4.00-4.25	4.25-4.375
N. Tex.	3.625-3.75	3.875-4.125	4.125-4.25
W. Tex.	3.625-3.75	3.875-4.125	4.125-4.375
La.-Ark.	3.625-3.75	4.00-4.25	4.25-4.375
Ind.-Ill.	3.625	.....	.....

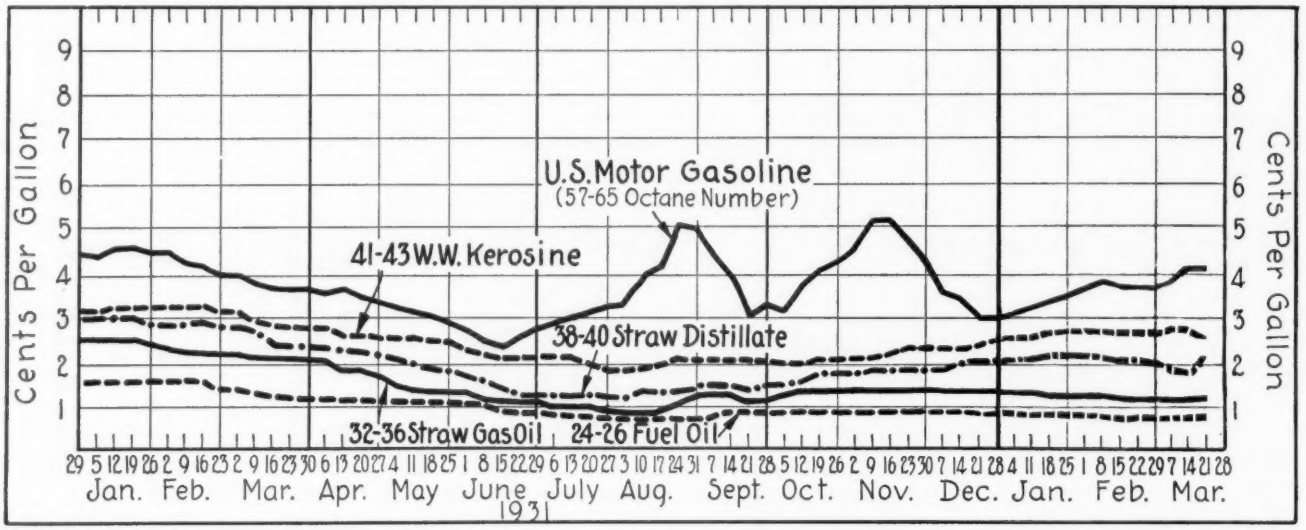
Prices are those quoted on the basis of f.o.b. Group 3 by refiners in the districts designated.

U. S. Motor gasoline generally was offered at 3.5 to 4.375 cents, depending on the octane rating. The 60-62, 437 and 400 end point grades were up 0.125 cent in most quarters, being offered mostly at minimum prices of 3.625 and 3.75 cents, respectively.

Kerosine prices held their ground well. Traders generally asked 2.625 to 2.75 cents for 41-43 w.w. and 2.75 to 2.875 cents for the 42-44 w.w. grade. One carlot marketer said that he had had a difficult time "covering" on a sale of 41-43 w.w. made at 2.625 cents. Demand was not very active for this product, but most of the trade were anticipating better buying shortly.

Demand for distillate, zero gas and fuel oils remained fairly active most of the week, although it had slowed down somewhat from the heavy movement of the previous week. However, the weather remained cold enough to keep consumption at a good enough level to prevent any sagging in tank

Current Prices of Principal Mid-Continent Refined Products


Cents Per Gallon
U.S. Motor Gasoline
(57-65 Octane Number)
41-43 W.W. Kerosine
38-40 Straw Distillate
32-36 Straw Gas Oil
24-26 Fuel Oil
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1931

Prices shown are in Group 3 basis and extended to date shown in Refinery Market Table Section of this issue

car prices. Demand from industrial concerns for gas and fuel oils remained light. Prices generally remained at the same levels that have prevailed for the past few weeks.

S. O. New Jersey Raises Gasoline

NEW YORK—On March 23 Standard Oil Co. of New Jersey will advance tank wagon and service station prices of gasoline ½ cent through its territory, it announced March 22. Last previous general change was a ½ cent cut on service station prices only Feb. 17, together with a ½ cent advance in dealer discount.

Late Market Changes

CHICAGO—On March 22, the Standard Oil Co. of Indiana and other major marketing companies will make changes in tank wagon and service station prices of gasoline, kerosine and naphtha at points in Michigan and Indiana affected by the change in freight rates which went into effect March 15. While the actual amounts of changes at specific points have not yet been worked out, it is indicated that prices will be advanced in amounts ranging from 1/10 to 6/10 cent, and reduced at others, reductions amounting in most instances to 1/10 cent.

Iowa Dixie Members Buy Uniform Advertising

KNOXVILLE, Ia., March 19.—Following the adoption of a uniform plan of advertising, the Dixie Distributors of Iowa are this week receiving their first shipment of advertising material from J. A. Dennis, secretary-treasurer.

Under this new plan all advertising material will be purchased by the organization and paid for by the state treasurer.

With the introduction of the new "Dixie Higher Octane" gasoline, 1000 fence signs have been distributed for "flash" advertising on this new product. In addition, placards on Dixie Super motor oil and Penn-Dix are being sent out for station displays. Calendars and other supplies are also included in this first consignment.

An eight-page booklet giving helps on service and sales advice to station salesmen and tank truck operators will be distributed next week. It is planned to issue these as the need arises—probably four during the year. It will supplement a general sales manual which is in the process of preparation. Within a short time Dixie maps of all mid-western states will be ready.

The organization also furnishes a newspaper mat service to members and pays a portion of the cost of insertion.

Building Eight Service Stations

MIAMI, Fla.—Eight service stations are being built in southeastern Florida by the Belcher Oil Co. here.

Van Cleave Resigns as Hartol Official

NEW YORK, March 19.—H. B. Van Cleave has resigned as vice-president and director of the Hartol Products Corp. His severing of connections with that company completes seven years of experience in the oil business. Mr. Van Cleave has no definite plans for the future.

May Limit Underground Station Storage

LOS ANGELES, Mar. 18.—Action has been initiated in the Los Angeles City Council to limit the amount of gasoline that may be carried in underground storage tanks at service stations within the city's corporate limits. Under its provisions, the allowable would be 10,000 gallons per station, whereas some of the fairly recent installations for independent operators have provided for capacities of upward of 85,000 gallons, each.

Major companies would not be affected by such a measure as their storage facilities rarely exceed 5000 or 6000 gallons at a single station. However, definite opposition to the bill is being shown by the large-station operators, who have a considerable investment in storage equipment, and

Prices A Year Ago

March 23, 1931

	Oklahoma	Penna.
58-60 U. S. Motor Gasoline	3.50-4.00	5.50-5.75
Grade A Natural Gasoline	2.625-2.75	.....
Kerosine (Okla. 41-43; Pa. 47 w. w.)	2.625-3.00	5.00-5.375
Fuel Oil (Okla. 24-26; Pa. 36-40)	$0.50-$0.55	3.00-3.25
Crude (Okla. 35-35.9)	$0.57	$1.85
Chicago tank wagon (including 3c tax)		14.00c

by some independent refiners, who supply this storage.

Some responsibility for past disturbances in southern California retail gasoline prices has been laid at the door of operators with this large storage, who have been able to undersell the ethical major and small independent dealer through their ability to buy in bulk lots.

Prefers To Be Independent And Paddle Own Canoe

BATON ROUGE, La., March 18.—Five years of wholesaling gasoline, greases and motor oils, has brought the Home Oil Co., Inc. 40 outlets to supply within a 50-mile radius of Baton Rouge.

The company began business April 22, 1928 with one 15,270-gallon tank, a pump house, one small truck, a warehouse on a spur track, five 10-gallon pumps and other necessary equipment.

Since then it has added more storage, service stations and three trucks from which it supplies other outlets.

R. M. Brown, manager, who laments that the oil business is not one generally appreciated by the motorist, makes these comments in a letter to NATIONAL PETROLEUM NEWS:

"In this city of 47,000 population, you will find very little co-operation between the oil companies . . . . there is price cutting, rebating and scheming to get business at any cost . . . . business that sometimes doesn't look just right and according to the code of ethics.

"About building service stations, we have put the stoplight on right now as to branching out further . . . . we have had several offers by the major companies who either want to buy us out or lease, but have refused all such offers as we prefer to paddle our own canoe and remain Independent, because we believe there will always be a place for the Independent jobber who conducts his business on a fair and square scale."

Proposes Lincoln's Muny Station Show Profit

LINCOLN, Neb.—Lincoln's municipal service station again is receiving local attention.

A referendum petition proposing that the municipal station must charge a profit of 1.9 to 3 cents a gallon on gasoline has been filed with the city clerk with the request that a special election be called and the proposal submitted as an amendment to the city charter.

Names are being checked now by the city clerk and if there are sufficient signatures the city council will direct a special election April 12, at the time of the state primaries.

The municipal station is the result of Governor Charles Bryan's ideas of government control to protect the people. At one time there was a state operated service station on the outskirts of Lincoln. Five years ago the municipal station was investigated on the charges that the operator, a member of the city council, was paying exhorbitant premiums in purchasing gasoline.

May Build Bulk Plant

MIAMI, Fla.—L. M. Barton, who has been selling petroleum products for many years, says that "business is good for the go-getter," and that his motto is "quality first, then service."

He further comments that "just as soon as some major oil companies quit selling price cutters and get down to business and not try to grab everything, the oil industry will be a lot better."

Mr. Barton, whose address is 2119 S. W. Third street, Miami, plans to build a bulk station.

Opens Minneapolis Office

HOUSTON, March 22.—An office was opened March 1 by Cooper-Keller Oil Co., Houston, at 1203 Foshay Tower, Minneapolis, to handle business in the northwest territory. B. P. Cooper has moved from Houston to Minneapolis to take charge of that office.

B. D. Dawson, formerly with the Great West Refining Co., Wichita Falls, is now with the sales department of the Cooper-Keller company.

Mid-Continent Refinery Markets

Gasoline Prices Hold Ground Gained

Staff Special

TULSA, March 19

GASOLINE held its ground well the third week of March as demand and supply available in the open market remained fairly evenly balanced in all districts.

Jobbers continued to order sizeable quantities on contracts and with a return of milder weather in much of the middle west a larger proportion of the gasoline was going more rapidly to the consumer. While jobbers were believed to be building up their storage at the present time the amount was not considered sufficient to cause any sag in the market.

This was attributed in part to the fact that several refiners continued to be entirely out of the open market, and indications were little gasoline would be offered in the open market for the next few weeks. Refiners in all Mid-Continent areas apparently are keeping their output well in line with current demand.

Reports indicate that much of the gasoline now in storage is in the hands of larger companies with retail outlets and it is being held for spring and summer demand and will not be a factor in open market trading.

A few refiners have been in the market for odd cars but no large buying has been reported from this source. In view of this condition the trade generally has been considerably encouraged by the improved position of the market, basing this encouragement on the belief that the improvement was basically sound.

Natural gasoline advanced 0.125 cent as demand held up well throughout the week. This demand was from both jobbers and refiners and was sufficient to keep any surplus from appearing on the market. Some buying earlier in the month for shipment to Gulf ports also was credited with giving more stabilization to the current market.

Kerosine demand was fair in all districts with Kansas refiners reporting they were short. Some inter-refinery buying was reported in the course of the week. Farmers are getting into the fields more and the consumer demand accordingly has increased. Prices were generally unchanged.

Distillate and zero gas oil demand remained fairly active despite the more moderate weather in the middle west. The zero gas oil was extremely scarce in most Mid-Continent quarters and some inter-refinery buying was done in order to fill orders from regular accounts.

Fuel oil demand was steady, most refiners reported. Some of the higher gravity oil was going into storage to be held for cracking, and demand for lower gravity oil showed a slight increase due to the milder weather. Prices generally were unchanged.

Several refiners reported neutral oil demand was quieter and considerable competition was encountered for what business existed. A few grades were reduced slightly while other grades were quoted at unchanged prices.

Bright stock demand was light in most quarters but no further changes were made in prices. At least one refiner has curtailed production to the point where he will have virtually no more material to offer in the open market this year unless anticipated requirements from his regular trade fail to come up to expectations.

Chicago Tank Car Market

CHICAGO, March 19

THE gasoline market took a breathing spell in Chicago last week, following the rapid price advances of the previous few weeks. Several grades showed no change in price, while a few were up 0.125 cent. Spot demand was light; contract movement also slowed down.

U. S. Motor Gasoline was offered at 3.5 cents and up March 19, depending on the octane rating. Kerosine was steady and showed little fluctuation in price. Distillate, gas and fuel oils were in fairly active demand.

Following prices represent majority of sales to jobbers on Group 3 freight basis, although shipments may originate in other refining districts, such as North, West and East Texas, Louisiana, Arkansas, Indiana, Illinois, Kentucky, etc.

	Prices March 21	Prices March 14	Prices March 7
50-52, 437 e.p. naphtha	3.25 – 3.375	3.125– 3.25	2.875– 3.00
U. S. Motor Gasoline:			
Below 57 octane number	3.50 – 3.75	3.50 – 3.625	3.125– 3.25
57-65 octane number	3.875– 4.125	3.875– 4.00	3.50 – 3.75
Above 65 octane number	4.125– 4.375	4.00 – 4.25	3.75 – 4.00
60-62, 437 e.p. gasoline:			
Below 57 octane number	3.50 – 3.75	3.50 – 3.625	3.125– 3.375
57-65 octane number	3.875– 4.25	3.875– 4.00	3.50 – 3.75
Above 65 octane number	4.125– 4.375	4.00 – 4.25	3.75 – 4.00
60-62 400 e.p. gasoline:			
Below 57 octane number	3.625– 3.875	3.625– 3.75	3.25 – 3.375
57-65 octane number	4.00 – 4.25	4.00 – 4.125	3.625– 3.875
Above 65 octane number	4.375– 4.50	4.25 – 4.375	3.875– 4.125
64-66 375 e.p. gasoline	3.875– 4.125	3.875– 4.125	3.75 – 4.00
68-70 350-360 e.p. gasoline	4.125– 4.25	4.00 – 4.25	4.00 – 4.25
*Domestic Aviation Gasoline, below 73 octane number	4.75 – 4.875	4.875	4.625– 4.75
41-43 w.w. kerosine	2.625– 2.75	2.625– 2.75	2.50 – 2.625
42-44 w.w. kerosine	2.75 – 2.875	2.75 – 2.875	2.625– 2.75
38-40 p. w. distillate	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
38-40 straw distillate	1.875– 2.00	1.875– 2.00	1.875– 2.00
32-36 ordinary dark gas oil	1.00 – 1.125	1.00 – 1.125	1.00 – 1.125
32-36 dark zero gas oil	1.625– 1.75	1.625– 1.75	1.625– 1.75
32-36 straw zero gas oil	1.875	1.875	1.75 – 1.875
28-30 zero fuel oil (per bbl.)	$0.50 –$0.55	$0.50 –$0.55	$0.50 –$0.55
28-30 fuel oil (per bbl.)	$0.40 –$0.425	$0.40 –$0.425	$0.40 –$0.425
24-26 fuel oil (per bbl.)	$0.30 –$0.325	$0.30 –$0.325	$0.30 –$0.325
18-22 fuel oil (per bbl.)	$0.225–$0.25	$0.225–$0.25	$0.225–$0.25
18-22 zero fuel oil (per bbl.)	$0.25 –$0.30	$0.25 –$0.30	$0.25 –$0.30
14-16 fuel oil (per bbl.)	$0.175–$0.225	$0.175–$0.225	$0.175–$0.225

*Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at 122°-167°F.; 50% at 221°; 90% at 311°; 96% at 347°; end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

Gas Tax Evasion Chairmen Form Central Committee

CHICAGO, March 18.—The support of state officials in uncovering gasoline tax evasion, assisting such officials in investigating gasoline bootlegging, urging gasoline tax decreases and opposition to the diversion of gasoline tax funds, were the policies adopted by the Central Gasoline Tax Evasion Committee which was organized when chairmen of gasoline tax evasion committees from 15 states met March 15 at Chicago. F. V. Martinek, chairman of the Illinois committee, was selected permanent chairman.

Paul Hadlick, secretary, marketing division, American Petroleum Institute, will co-ordinate regional group activities against gasoline tax evasion for the whole country.

Selected to the executive committee were H. L. Rauch, Indiana; Ross Campbell, Michigan; Carl Barker, Missouri; and N. B. Curtice, Minn.

Speakers in addition to Mr. Hadlick, were: Judge George F. Barrett, Chicago attorney, who discussed the legal problems involved in the gasoline tax evasion campaign; Dan W. Gallagher, who discussed public interest in the campaign, and J. P. Rooney, who described practice and procedure in investigation and prosecution of gasoline tax evaders.

State committee chairmen who attended the meeting were: H. C. Bretschneider, Colorado; F. V. Martinek, Illinois; H. L. Rauch and Sam Hurd, Indiana; H. E. Wormhoudt, Iowa; H. C. Marsh, Kansas; Ross S. Campbell, Michigan; N. B. Curtice, Minnesota; Carl Barker, Missouri; R. C. Maslowski, North Dakota; C. W. Shields, South Dakota; Burton Musser, Utah; Henry J. Stolz, Wisconsin and W. M. Jack, Wyoming.

J. R. Atchison of the Oklahoma committee, attended as a guest.

Quinlan Heads Marketing For Derby Oil

WICHITA, March 19.—J. P. Quinlan, formerly manager of the Wichita division for the Standard Oil Co. of Indiana has been made manager of retail marketing for the Derby Oil & Refining Corp. with headquarters in Wichita.

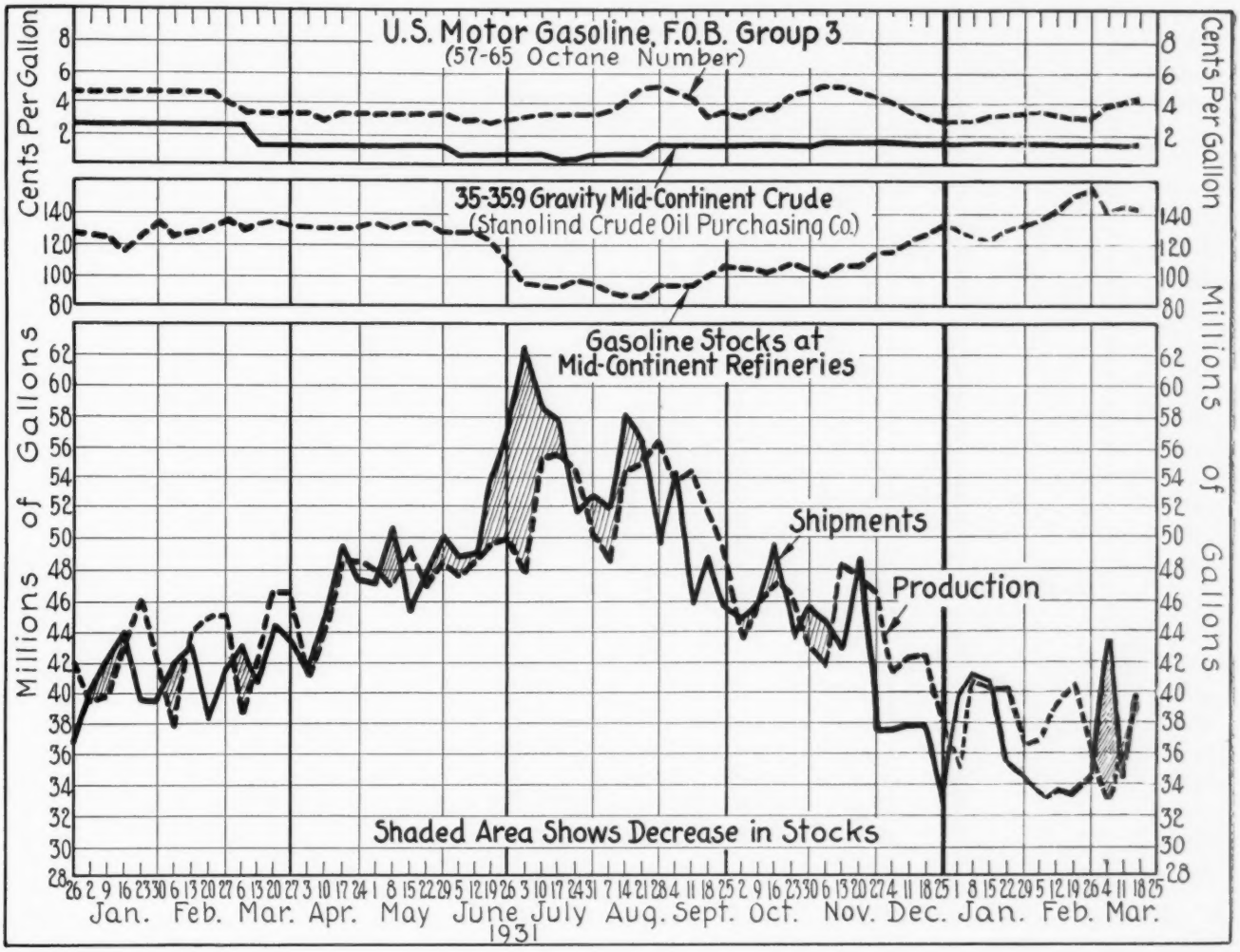
H. V. Ewing, formerly with the Shell Petroleum Corp. has joined the Derby sales force and will have the northeastern Kansas, northwestern Missouri and Nebraska and Iowa territory.

F. C. Nofsinger, formerly with Phillips Petroleum Co. in Colorado and Chicago divisions, has joined the Derby staff and will have his headquarters in Kansas City.

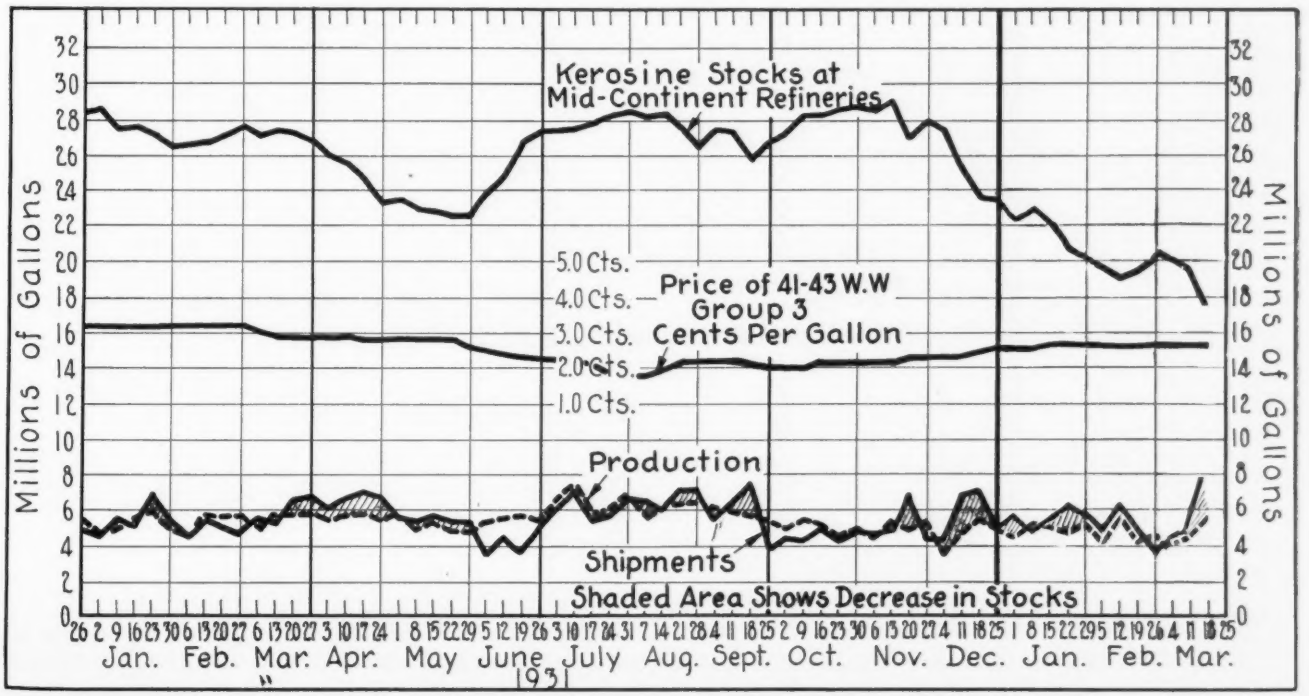
C. E. Clark, formerly special representative at Wichita for Phillips also has joined the Derby sales force.

Barometer of Mid-Continent Refinery Market—Week Ending March 18

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


U.S. Motor Gasoline, F.O.B. Group 3
(57-65 Octane Number)
Cents Per Gallon
35-35.9 Gravity Mid-Continent Crude
(Stanolind Crude Oil Purchasing Co.)
Gasoline Stocks at
Mid-Continent Refineries
Millions of Gallons
Shipments
Production
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1931

Prices shown above are extended to date shown in Refinery Market and Crude tables in Market section of this issue and stocks, shipments and Production are extended to date as shown in the table on page 50



Refinery Markets on Light Oils and Lubricants

Prices given below are in cents per gallon, except where $ is shown, in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(These Refinery Prices compiled in the OIL PRICE HANDBOOK for a whole year)

GASOLINE AND NAPHTHA

OKLAHOMA (F. o. b. Oklahoma refineries)

	Prices March 21	Prices March 14	Prices March 7
50-52 450 e.p. naphtha	3.25	3.25	2.875– 3.00
U. S. Motor Gasoline			
Below 57 octane number	3.625– 3.75	3.625– 3.75	3.25 – 3.375
57-65 octane number	4.00 – 4.25	4.00 – 4.25	3.75 – 3.875
Above65 octane number	4.125– 4.375	4.25 – 4.375	3.875– 4.125
60-62, 400 E.P. Gasoline			
Below 57 octane number	3.75 – 3.875	3.75	3.375– 3.50
57-65 octane number	4.25	4.25	3.875– 4.00
Above 65 octane number	4.375– 4.50	4.375	4.00 – 4.125
64-66, 375 E.P. Gasoline	4.00 – 4.25	4.00 – 4.25	3.625– 4.125
68-70 350-360 e.p. gasoline	4.25	4.25	4.00 – 4.25
‡Domestic Aviation Gasoline, below 73 Octane number	4.875	4.50 – 4.75	4.50 – 4.625

‡Prices based on U. S. Gov't. specifications or better. Present Gov t. specifications require distillation range of 5% recovery at 122°-167°F.; 50% at 221°; 90% at 311°; 96% at 347°; end point, 374°F. Fighting grade in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

52-54 Naphtha	4.125– 4.25	4.125– 4.25	4.00 – 4.25
54-56 Naphtha	4.25 – 4.375	4.25 – 4.375	4.125– 4.25
U. S. Motor (58-62°)	4.25 – 4.50	4.25 – 4.50	4.125– 4.50
64-66 390 e.p. gasoline	4.625– 5.00	4.50 – 5.00	4.50 – 5.00
68-70 350-360 e.p.	5.25 – 5.50	5.125– 5.50	5.125– 5.50

OHIO (Quotations of S. O. Ohio. 4c state tax to be added. Delivered any point in Ohio.)

U. S. Motor Gasoline	6.75	6.25	6.25
60-65 Octane number	7.00	6.50	6.50

KANSAS (F. o. b. refinery, Kansas destination)

U. S. Motor Gasoline			
Below 57 octane number	3.75 – 4.00	3.875– 4.00	3.375– 3.50
57-65 octane number	4.125– 4.375	4.25 – 4.375	3.875– 4.125
Above 65 octane number	4.375– 4.625	4.50 – 4.625	4.25 – 4.50
60-62 400 e.p. gasoline	4.00 – 4.25	4.00 – 4.25	3.625– 4.00
64-66 375 e.p. gasoline	4.375– 4.625	4.375– 4.625	4.125– 4.25

NORTH TEXAS (F. o. b. North Texas refineries)

68-60 450 e.p. gasoline	3.375– 3.50	3.375– 3.50	3.00
U. S. Motor Gasoline			
Below 57 octane number	3.625– 3.75	3.625– 3.75	3.25 – 3.375
57-65 octane number	3.875– 4.125	4.00 – 4.125	3.625– 3.75
Above 65 octane number	4.125– 4.25	4.125– 4.375	3.875– 4.00
60-62 400 e.p. gasoline	3.875	3.875	3.50 – 3.625
64-66 390 e.p. gasoline	4.00 – 4.125	4.00 – 4.125	3.625– 3.75
64-66 375 e.p. gasoline	4.00 – 4.125	4.00 – 4.125	3.625– 3.875
68-70 350-360 e.p. gasoline	4.25	4.25	3.875– 4.125

****WEST TEXAS** (F. o. b. West Texas refinery, for unrestricted shipment)

U. S. Motor Gasoline			
Below 57 Octane number	3.625– 3.75	3.625– 3.75	3.25 – 3.375
57-65 Octane number	3.875– 4.125	4.00 – 4.125	3.625– 3.875
Above 65 Octane number	4.125– 4.375	4.25 – 4.375	3.875– 4.00

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

U. S. Motor Gasoline			
Below 57 Octane number	4.00	4.00	3.75
57-65 Octane number	4.375	4.375	4.25
Above 65 Octane number	4.625	4.625	4.50

ARKANSAS (Ark., N. La., and Miss. destination)

U. S. Motor Gasoline			
Below 57 Octane number	4.00	4.00	3.75
57-65 Octane number	4.375	4.375	4.25
Above 65 Octane number	4.625	4.625	4.50

††Prices Nominal. ††Only one refiner quoting. *Quotations only.

CALIFORNIA (3c tax to be added to California gasoline prices if used in state.)

	Prices March 21	Prices March 14	Prices March 7
54-58 U.S. Motor 437 e.p.	4.75 – 8.50	4.75 – 8.50	4.75 – 8.50
54-58 U.S. Motor, for outside state shipment	4.75 – 5.75	4.75 – 6.00	4.75 – 6.00
42-45 Engine Distillate 445-480 e.p.	5.50 – 6.25	5.50 – 6.25	5.50 – 6.25

NATURAL GASOLINE

OKLAHOMA (F. o. b. Group 3)

‡Grade 26-70	1.75	1.625	1.375

NORTH TEXAS (F. o. b. Breckenridge)

‡Grade 26-70	1.75	1.625	1.375

CALIFORNIA (F. o. b. California refineries)

75-85, 375-390 e.p. for blending	5.00 – 5.75	4.75 – 5.75	4.75 – 5.75

‡On inquiries for other grades of natural gasoline, majority of manufacturers quote prices 10 to 15% above or below Grade 26-70 for each 4 pounds difference in vapor pressure between the grade desired and that of Grade 26-70.

BURNING OILS

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

45 w.w. kerosine	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
46 w w. kerosine	4.25 – 4.375	4.25 – 4.375	4.25 – 4.375
47 w.w. kerosine	4.375– 4.50	4.375– 4.625	4.375– 4.625

OKLAHOMA (F. o. b. Oklahoma refineries)

41-43 w.w. kerosine	2.625– 2.75	2.625– 2.75	2.625– 2.75
42-44 w.w. kerosine	2.75 – 2.875	2.75 – 2.875	2.75 – 2.875

KANSAS (F. o. b. refinery Kansas destination)

41-43 w.w. kerosine	3.00 – 3.125	3.00	3.00
42-44 w.w. kerosine	3.125	3.00 – 3.125	3.00 – 3.125

NORTH TEXAS (F. o. b. North Texas refineries)

41-43 w.w. kerosine	2.625– 2.75	2.625– 2.75	2.625– 2.75

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

41-43 w.w. kerosine	3.25	3.25	3.00 – 3.25

ARKANSAS (Ark., N. La. and Miss. destination)

41-43 w.w. kerosine	3.25	3.25	3.00 – 3.25

CALIFORNIA (F. o. b. California refineries)

38-40 w.w. kerosine	3.75 – 5.00	3.75 – 5.00	3.75 – 5.00

NEUTRAL OIL

PENNSYLVANIA (F. o. b. Western Pennsylvania refineries)

Viscous Neutrals

Vis.	(Viscosity at 70° F.)		
200 No. 3 color, 420-425 flash:			
Zero pour test	22.50 –24.00	23.00 –24.00	23.00 –24.00
10 pour test	21.50 –23.00	22.00 –23.00	22.00 –23.00
15 pour test	19.50 –21.00	20.00 –21.00	20.00 –21.00
25 pour test	18.00 –19.00	18.50 –19.50	18.50 –19.50
30 pour test	17.00 –18.00	17.75 –18.25	18.00 –18.50
180 No. 3 color, 410-415 flash:			
25 pour test	15.50 –16.50	16.50 –17.50	16.50 –17.50
150 No. 3 color, 400-405 flash:			
Zero pour test	15.00 –17.00	15.50 –17.00	15.50 –17.00
10 pour test	14.00 –16.00	14.75 –16.50	14.75 –16.50
15 pour test	13.50 –15.50	14.00 –15.50	14.00 –15.50
25 pour test	13.00 –13.50	13.25 –13.50	13.25 –13.50
30 pour test	12.75 –13.00	13.00 –13.25	13.00 –13.25

Refinery Markets Wax, Lubricants, Heavy Oil

Prices given below are in cents per gallon, except where $ is shown in tank car lots, f.o.b. Refinery. They represent prices made only to domestic jobbers who resell to the consuming public, except where otherwise noted.

(For quick reference to Refinery Prices, get the OIL PRICE HANDBOOK, published annually)

**MID-CONTINENT (F. o. b. Mid-Continent refineries)

Vis.	Color	Prices March 21 (Viscosity at 100° F.) 0 to 10 Pour Point	15 to 30 Pour Point	Prices March 14 (Viscosity at 100° F.) 0 to 10 Pour Point	15 to 30 Pour Point
100	No. 2	4.50	4.00 – 4.25	4.50	4.00 – 4.25
150	No. 3	6.50	6.25	6.50	6.25
150	No. 4	6.00 – 6.25	5.75 – 6.00	6.00 – 6.25	5.75 – 6.00
180	No. 3	7.25 – 7.50	7.00	7.75 – 8.00	7.50
180	No. 4	7.00 – 7.50	6.75 – 7.00	7.25 – 7.50	7.00 – 7.25
180	No. 5	6.75	6.50	6.75	6.50
200	No. 3	7.50 – 8.00	7.00 – 7.25	7.50 – 8.00	7.00 – 7.50
200	No. 4	7.50 – 7.75	7.00 – 7.25	7.50 – 7.75	7.00 – 7.25
200	No. 5	7.25	6.75 – 7.25	7.25	6.75 – 7.25
220	No. 3	9.25 – 9.50	9.00	9.25 – 9.50	9.00
220	No. 4	9.00 – 9.25	8.50 – 8.75	9.00 – 9.25	8.50 – 8.75
220	No. 5	8.75 – 9.00	8.50	8.75 – 9.00	8.50
240	No. 3	10.00 –10.25	9.50	10.00 –10.25	9.50
240	No. 4	9.50 – 9.75	9.00 – 9.25	9.50 – 9.75	9.00 – 9.25
240	No. 5	9.50	9.00	9.50	9.00
280	No. 3	11.25 –11.50	10.75 –11.00	11.25 –11.50	10.75 –11.00
280	No. 4	10.50 –11.00	10.00 –10.50	10.50 –11.00	10.00 –10.50
280	No. 5	10.75	10.25	10.75	10.25

SOUTH TEXAS (F. o. b. South Texas refineries)

Vis.	Color	Prices March 21 (Viscosity at 100° F., pour test 0)	Prices March 14	Prices March 7
200	No. 3 Pale	5.50 – 6.50	5.50 – 6.50	5.50 – 6.50
300	No. 3 Pale	6.25 – 7.25	6.25 – 7.25	6.25 – 7.25
500	No. 3½ Pale	7.00 – 7.75	6.75 – 7.75	6.75 – 7.75
750	No. 4 Pale	7.50 – 8.50	7.50 – 8.50	7.50 – 8.50
1200	No. 4 Pale	9.00 –10.00	9.00 –10.00	9.00 –10.00
2000	No. 4-5 Pale	10.00 –11.00	10.00 –11.00	10.00 –11.00
200	No. 5½ Red Oil	4.50 – 5.50	4.50 – 5.50	4.50 – 5.50
300	No. 5½ Red Oil	5.25 – 6.25	5.25 – 6.25	5.25 – 6.25
500	No. 6 Red Oil	6.00 – 7.00	6.00 – 7.00	6.00 – 7.00
750	No. 6 Red Oil	7.00 – 8.00	7.00 – 8.00	7.00 – 8.00
1200	No. 5-6 Red Oil	8.50 – 9.50	8.50 – 9.50	8.50 – 9.50
2000	No. 5 Plus Red, Oil	9.00 –10.00	9.00 –10.00	9.00 –10.00

CALIFORNIA (F. o. b. California refineries)

Vis.	Color	(Viscosity at 100° F.)		
100	No. 3	8.00	8.00	8.00
200	No. 3	8.00	8.00	8.00
300	No. 3	8.50	8.50	8.50
450	No. 3	10.00	10.00	10.00
550	No. 3	11.00	11.00	11.00
600	No. 3	11.50	11.50	11.50
200	No. 5	8.00	8.00	8.00
300	No. 5	8.50	8.50	8.50
400	No. 5	9.50	9.50	9.50
500	No. 5	10.50	10.50	10.50
600	No. 5	11.50	11.50	11.50
700	No. 7	12.50	12.50	12.50

CYLINDER STOCKS

MID-CONTINENT (F. o. b. Mid-Continent refineries)

(Prices represent quotations and sales).

190-200 Vis. D at 210° Brt. St.	18.00	18.00	18.00
150-160 Vis. D at 210° Brt. St.:			
0-10 cold test	15.00 –16.00	15.50 –16.00	16.00
10-25 cold test	14.75 –15.25	14.75 –15.25	14.75 –15.25
25-40 cold test	14.50 –15.00	14.50 –15.00	14.50 –15.00
150-160 Vis. E 210° Brt. St.	15.00	15.00	15.00
600 St. Ref. Olive Green	4.00 – 5.00	4.00 – 5.00	4.50 – 5.50
600 St. Ref. Dark Green	3.50 – 4.00	3.50 – 4.00	3.50 – 4.50
Black Oil	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25

PENNSYLVANIA (F. o. b. Western Penna. refineries) (A.S.T.M. Tests)

600 Steam Refined, filterable	13.25 –14.00	13.75 –14.00	13.75 –14.00
650 Steam Refined	15.50 –16.00	16.00 –16.50	16.00 –16.50
600 Flash	16.50 –17.00	17.00 –17.50	17.00 –17.50
630 Flash	21.50 –22.50	22.50 –23.00	22.50 –23.00
500 Warren E	15.50 –16.00	15.75 –16.00	15.75 –16.00
Bright Stock, No. 8 color, 140-150 vis. at 210°, 540-550 flash:			
10 pour test	25.50 –27.00	26.00 –27.00	26.00 –27.00
15 pour test	22.50 –23.00	23.00 –24.00	23.00 –24.00
25 pour test	21.50 –22.00	22.00 –23.00	22.00 –23.00
35 pour test	21.00 –22.00	21.50 –23.00	21.50 –23.00
45 pour test	††22.00	††23.00	††23.00

WAX

PENNSYLVANIA (Per pound, F. o. b. New York)

122-124 white crude scale a.m.p.	2.05 – 2.125	2.05 – 2.125	2.05 – 2.125
124-126 white crude scale, a.m.p.	2.125– 2.25	2.125– 2.25	2.125– 2.25

**OKLAHOMA (Per pound in barrels; in a few instances, per pound in burlap bags; F. o. b. Oklahoma refineries.)

	Prices March 21	Prices March 14	Prices March 7
124-126 White Crude Scale, a.m.p.	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00

DISTILLATE, GAS AND FUEL OIL

PENNSYLVANIA (For outside Pittsburgh district)

36-40 fuel oil	2.875– 3.125	2.875– 3.00	2.875– 3.00

OKLAHOMA (F. o. b. Oklahoma refineries)

38-40 straw distillate	2.00 – 2.125	1.875– 2.00	1.875– 2.00
36-38 straw distillate	1.875– 2.00	1.75 – 1.875	1.875
32-36 straw gas oil	1.125– 1.25	1.125– 1.25	1.125– 1.25
32-36 straw gas oil zero	2.00 – 2.125	1.875– 2.00	1.875– 2.00
32-36 dark gas oil	1.00 – 1.125	1.125	1.00 – 1.125
32-36 dark gas oil zero	2.00	1.875	1.75 – 1.875
28-30 fuel oil, zero (per bbl.)	$0.525–$0.55	$0.525–$0.55	$0.525–$0.55
28-30 fuel oil (per bbl.)	$0.425–$0.45	$0.425–$0.45	$0.425–$0.45
26-28 fuel oil (per bbl.)	$0.375–$0.40	$0.375–$0.40	$0.375–$0.40
24-26 fuel oil (per bbl.)	$0.35 –$0.375	$0.35 –$0.375	$0.35 –$0.375
22-26 fuel oil (per bbl.)	$0.325–$0.35	$0.325–$0.35	$0.325–$0.35
18-22 fuel oil (per bbl.)	$0.30 –$0.325	$0.30 –$0.325	$0.30 –$0.325
16-20 fuel oil (per bbl.)	$0.25 –$0.30	$0.25 –$0.30	$0.25 –$0.30
14-16 fuel oil (per bbl.)	*$0.275	*$0.275	*$0.275

KANSAS (F. o. b. refinery Kansas destination)

38-40 straw distillate	2.50	2.50	2.375– 2.50
36-38 straw distillate	2.375	2.375	2.25 – 2.375
32-36 straw gas oil	2.25	2.25	2.25
18-22 fuel oil (per bbl.)	$0.35 –$0.375	$0.35 –$0.375	$0.35 –$0.375
10-14 fuel oil (per bbl.)	$0.30 –$0.325	$0.30 –$0.325	$0.325–$0.35

NORTH TEXAS (F. o. b. North Texas refineries)

38-40 straw distillate	2.00	1.875– 2.00	1.875– 2.00
38-40 p.w. treated distillate	2.125	2.00 – 2.125	2.00 – 2.125
32-36 gas oil, cracked	1.875	1.875	1.75 – 1.875
32-36 St. reduced gas oil	1.25 – 1.375	1.25 – 1.375	1.25 – 1.375
24-26 fuel oil (per bbl.)	$0.40 –$0.425	$0.40 –$0.425	$0.40 –$0.425
20-24 fuel oil (per bbl.)	$0.325–$0.35	$0.325–$0.35	$0.325–$0.35
18-22 fuel oil (per bbl.)	$0.275–$0.325	$0.30 –$0.35	$0.30 –$0.35

**WEST TEXAS (F. o. b. West Texas refinery, for unrestricted shipment)

30-32 gas oil	1.50	1.50	1.375– 1.625
28-30 gas oil, zero	1.50 – 1.625	1.50 – 1.625	1.50 – 1.625
18-22 fuel oil (per bbl.)	$0.275–$0.325	$0.30 –$0.35	$0.30 –$0.35

NORTH LOUISIANA (N. La., Ark. and Miss. destination)

32-36 gas oil	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
32-36 gas oil, zero	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
14-16 fuel oil (per bbl.)	$0.30 –$0.35	$0.30 –$0.35	$0.30 –$0.35

ARKANSAS (Ark., N. La. and Miss. destination)

32-36 gas oil	1.75 – 2.00	1.75 – 2.00	1.75 – 2.00
32-36 gas oil, zero	2.00 – 2.25	2.00 – 2.25	2.00 – 2.25
28-30 gas oil	2.00	2.00	2.00
20-24 fuel oil (per bbl.)	$0.45 –$0.50	$0.45 –$0.50	$0.475–$0.525
9-12 fuel oil (per bbl.)	$0.35 –$0.375	$0.35 –$0.375	$0.35 –$0.40
Black oil	3.00	3.00	3.00

CALIFORNIA (F. o. b. refinery.)

14-18 fuel oil (per bbl.)	$0.45 –$0.55	$0.45 –$0.55	$0.45 –$0.55
14-18 Bunker oil (per bbl.)	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
30-34 gas oil (per bbl.)	$0.80 –$0.95	$0.80 –$0.95	$0.80 –$0.95
27 Plus Diesel oil (per bbl.)	$0.80 –$0.90	$0.80 –$0.90	$0.80 –$0.90

PETROLATUMS

PENNSYLVANIA (Per pound, in barrels, carload lots, f. o. b. Penna. refinery. In tank cars 5/8c to ¾c per pound less.) Quotations are from majority of refiners.

Snow White	6.25 – 7.00	6.25 – 7.00	6.25 – 7.00
Lily White	5.25 – 6.00	5.25 – 6.00	5.25 – 6.00
Cream White	4.25 – 5.00	4.25 – 5.00	4.25 – 5.00
Light Amber	2.25 – 2.75	2.25 – 2.75	2.25 – 2.75
Amber	2.00 – 2.50	2.00 – 2.50	2.00 – 2.50
Red	1.875– 2.00	1.875– 2.00	1.875– 2.00

PETROLEUM COKE

**OKLAHOMA (F. o. b. Oklahoma refineries)

(Per ton in car lots)

Lump	$3.00 –$4.00	$3.00 –$4.00	$3.00 –$4.00
Still run	$2.00	$2.00	$2.00
Breeze	$0.75 –$1.00	$0.75 –$1.00	$0.75 –$1.00

New Refining Patents

Catalytic Cracking. U. S. P. 1 831 - 185, Nov. 10, 1931, application filed Dec. 13, 1928 and in France Dec. 22, 1927; Jean Mercier.

IN A new system of catalytic cracking, heavy oils are heated in a boiler and passed into a cracking unit comprising a series of superimposed inclined retorts, joined at their ends in such a way that they constitute in effect a single very long retort of narrow cross section. The retorts are filled with a solid catalyst, such as metallic scale; and the lower members may contain a purifying agent. At the top of the series of retorts is a regulating chamber, also filled with catalyst; thence the vapors pass to an expansion and cooling unit. The cracked distillates are withdrawn, and condensed heavy oil is returned for further cracking.

What Is Claimed

In apparatus for depolymerizing heavy oils, a heating unit comprising a hollow heat-insulated frame, a set of superimposed inclined retorts mounted therein and connected in series, an inlet in the bottom retort and supplying a heating medium in the hollow part of the frame at the top, an outlet in the top retort, means for outlet for this medium at the bottom, means to deflect the heating medium along each retort, an unheated but heat-insulated catalytic chamber at the top of the frame between the top retort and the outlet for condensing the heavier vapors, and means for withdrawing the condensate from this chamber.

* * *

Heating With Gases. U. S. P. 1 832 - 975, Nov. 24, 1931, application filed Jan. 14, 1926; Oscar H. Fairchild, assignor to Universal Oil Products Co.

AMONG the principal difficulties in vapor phase cracking have been the loss of heat units being transmitted through container walls, and the rapid deterioration of metal equipment. Walls of refractory material have been tried; but this is incompatible with efficient heat transfer.

As a novel expedient to overcome these difficulties, a method and apparatus have been developed in which the oil vapor to be cracked is heated by direct physical contact with very hot gases. This is accomplished by passing the oil or its vapor into the highly heated zone of a heat generator immediately adjacent to the fuel gasifying zone. A bed of hot coke is maintained above the point of entry of the oil, to prolong the contact with the hot gases.

What Is Claimed

In vapor phase cracking, maintaining combustion at the lower part of a column of solid fuel and passing the evolved gases up through the column, restricting the path in a zone of increased velocity above the combustion zone, introducing the oil vapor adjacent to the restricted zone and well below the top of the column, causing the oil vapor to rise through the column intimately mixed with the hot gases so that the oil is cracked and the resulting carbon is deposited in the bed of fuel, controlling conditions to prevent complete gasification of the oil and favor formation of light hydrocarbon fractions, removing the gases and hydrocarbon vapors from the top of the column, and condensing the hydrocarbon vapors.

* * *

Pressure Cracking. U. S. P. 1 833 - 162, Nov. 24, 1931, application filed July 14, 1925; Eugene C. Herthel, assignor to Sinclair Refining Co.

IN AN improved pressure cracking process, an auxiliary coil is interposed between the firebox and the main heating surfaces of the pressure still, and part of the heating gases are recirculated to give milder conditions, protecting the heating surfaces from the full intensity of the furnace heat.

The auxiliary coil is used for a separate cracking operation, which is preferably combined with the pressure still operation by discharging the auxiliary coil into the pressure still. All or part of the charge in the auxiliary coil may advantageously be reflux from the reflux tower or the pressure still. Carbon deposition in the coil is thus lessened or eliminated, and the protection afforded to the pressure still by the coil decreases carbon deposition in the still also. The auxiliary coil is especially useful with pipe stills.

What Is Claimed

Heating oil to a cracking temperature by circulation over externally heated surfaces in the pressure still and circulating heating gases from a firebox over the heating surfaces of the pressure still, forcing tar-free oil once only through a separate cracking coil interposed between pressure still and firebox and thence directly into the pressure still, and recirculating heating gases which have passed over the heating surfaces and admixing them with the fresh heating gases from the firebox.

* * *

Temperature Control. U. S. P. 1 - 833 153, Nov. 24, 1931, application filed Jan. 17, 1928; Richard P. Brown, assignor to Brown Instrument Co.

IN the thermostatic control of furnaces used for heating oil to a refining temperature, the practice has been to have the control device effect changes in the rate of combustion in the furnace to maintain the heated oil at the required temperature. But the response to a change in rate of combustion is relatively slow, so that there is still lack of precision, and danger of local overheating with consequent damage to the oil and the apparatus.

It has been found that quicker and more accurate correction can be applied to variations in exit oil temperature if the control device is made to effect changes in rate of throughput instead of in rate of fuel combustion. A thermostatic control device is therefore provided which functions in this way.

What Is Claimed

In continuous heating of oil to a refining temperature in a tube heater, regulating the rate of combustion to maintain approximately constant operating conditions, and adjusting the rate at which oil is passed through the heater as required to maintain an approximately constant exit oil temperature.

* * *

Rotary Retort. U. S. P. 1 834 305, Dec. 1, 1931, application filed Aug. 6, 1928; Norris Goodwin and Norris M. Mumper, assignors to Industrial Process Co.

IN APPARATUS for cracking or hydrogenating oils, the desirable type of construction includes a rotary retort in which the reaction occurs under high pressure and from which the resulting gases or vapors must be withdrawn into a stationary member under a lower pressure. A major difficulty encountered in designing apparatus of this kind is the problem of sealing off the rotary, high pressure member from the stationary, low pressure member.

This problem has been effectively solved by a new design in which the high pressure in the retort is first throttled down to a lower pressure, and a seal is provided which is gastight with respect to this lower pressure. The throttling effect is accomplished by means of valve faces on the rotary and stationary members, these faces being separated by an adjustable space which the fluid products must traverse when they leave the retort. The adjustable space provides a variable clearance, so that any predetermined pressure can be maintained in the retort, while the fluid outlet needs to be packed only with respect to a lower pressure.

What Is Claimed

In apparatus for cracking oils, a rotatable retort having an opening in its axis of rotation, a reciprocable pipe passing through the opening to supply material to the retort, means on the outside of the pipe to form a variable closure for the opening sufficient to maintain a higher pressure inside than outside the closure when material is fed into the retort; and means for heating the retort.

Four Schlee Brothers Join Lincoln Oil, Detroit

DETROIT, March 11.—The four Schlee brothers, former owners of the Wayco Oil Corp., are now with Charles J. Raths and his sons in the Lincoln Oil Co. here.

The Lincoln has a bulk plant and 40 service stations. It was organized 36 years ago by Mr. Raths, who built one of the first drive-in service stations in Detroit. Later his three sons joined his business.

The Schlee brothers started the Wayco company in 1921 and sold about 300,000 gallons of gasoline that year. By 1928, when the company was sold to the Paragon Refining Co., the volume was about 30,000,000 gallons. The Paragon company later was sold to the Gulf Refining Co.

The official family of the Lincoln Oil Co. now is Charles J. Raths, president; Andrew G. Schlee, vice-president and general manager; Edward F. Schlee, vice-president and sales manager; G. H. Witz, vice-president and advertising manager; Dewey S. Schlee, vice-president and station manager; Charles A. Raths, secretary; Gerard J. Raths, treasurer and office manager; Wilfred P. Raths, station supervisor; D. E. Vernier, plant manager; F. Horn, superintendent of transportation. Earl H. Schlee is a director.

Independent Plants Resume Runs

FORT WORTH, March 19. — Resumption of activity by several inland Texas refineries scheduled during the last half of March was reported early this week.

Taylor Refining Co. at Tyler was reported ready to resume operation. The company's plant has capacity of 6000 barrels daily, but has been shut down, owners claiming that profitable operation was impossible under the current gasoline and crude oil market relationship.

Southern Oil & Refining Co. which has a plant at Reeds Switch in the Kilgore district, was reported planning to increase capacity by about 700 barrels daily.

In the North Texas refining district, eleven plants out of 17 are in operation, but all are running at between 30 and 50 per cent of capacity. Taxman Refining Co. last week purchased 20,700 barrels of crude oil from The Texas Co., paying the market price.

As further indication of the reduced schedules on which North Texas refineries are operating, daily average charges to stills last week amounted to 11,015 barrels, a decrease of 2530 barrels over the preceding week's report.

BETHLEHEM
WAX PLANT EQUIPMENT

Filter Presses — *Wax Moulding Presses*
Wax Distillate Chilling Machines — *Scale Wax Cooling Drums*
Wax Testing Presses — *Paraffine Wax Sweater Plants*
Complete Wax Plants designed and built
Stills, Towers, Condensers, and other Oil Refinery Equipment
Oil Burning Systems

BETHLEHEM STEEL COMPANY, *General Offices: Bethlehem, Pa.*

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis

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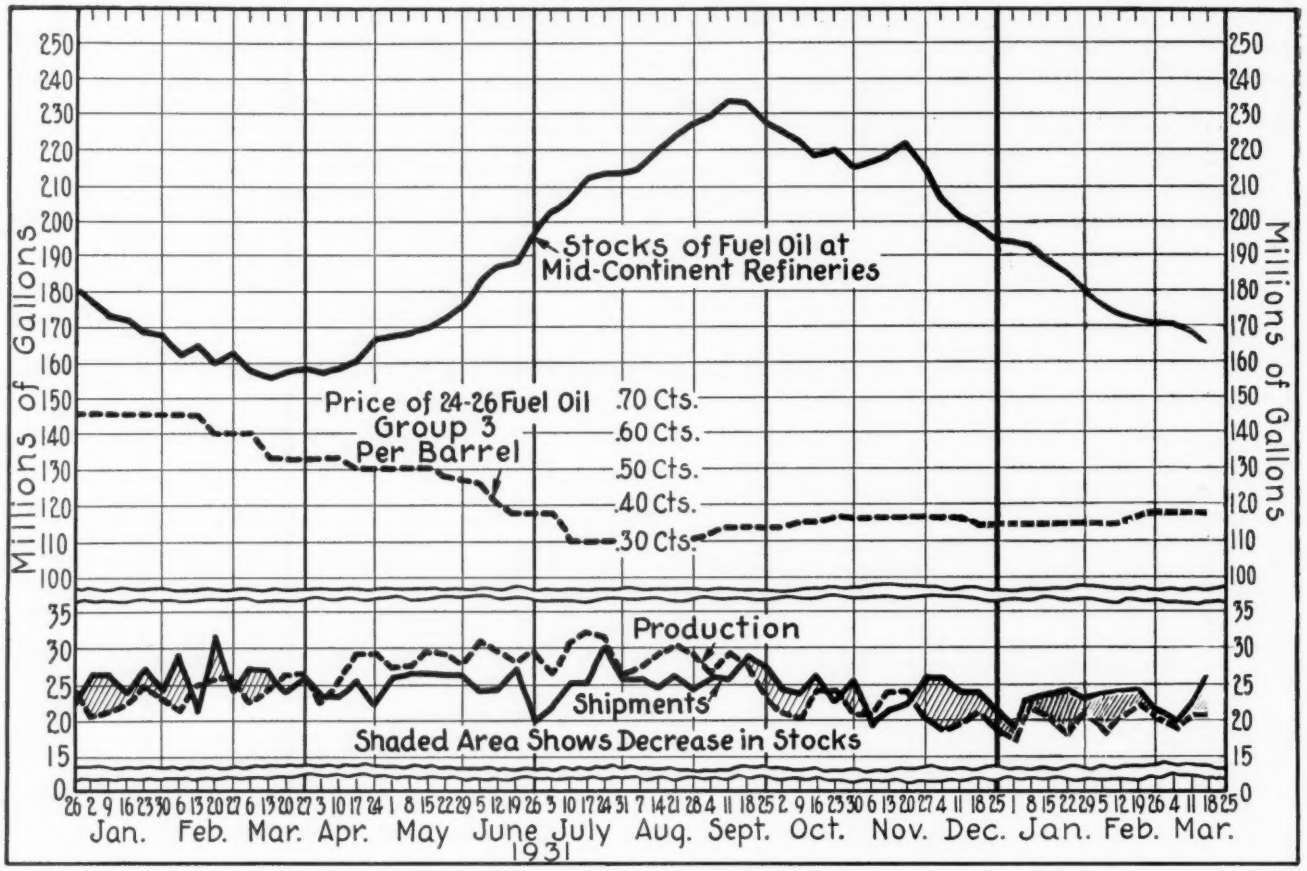
Barometer of Mid-Continent Refinery Market—Week Ending March 18

Charted Course of Prices, Production, Shipments, Stocks of Principal Refined Products, Week by Week, From Reports Made by 93 Plants to National Petroleum News


Millions of Gallons
Millions of Gallons
Stocks of Fuel Oil at Mid-Continent Refineries
Price of 24-26 Fuel Oil Group 3 Per Barrel
.70 Cts.
.60 Cts.
.50 Cts.
.40 Cts.
.30 Cts.
Production
Shipments
Shaded Area Shows Decrease in Stocks
Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec. Jan. Feb. Mar.
1931

California Refinery Market

Foreign Buyers Inquire for Small Lots

LOS ANGELES, Mar. 19—PACIFIC coast petroleum markets continued dull and without feature the past week as spot sales were lacking and few inquiries were reported to promote hope of future business.

Buyers in South America, Java, and China, made some inquiry for cased kerosine and gasoline in small lots, but no actual sales of consequence were reported. Demand for lubricating oils from buyers in these areas was fairly good.

Local members of the export trade reported a slight increase in inquiry from the Atlantic seaboard for quotations on 65 octane gasoline in cargo lots. A week or so ago it was reported a bulk quantity of this gasoline had been offered at 4 cents a gallon and current nominal quotations were reported still in the neighborhood of this figure.

In local markets, gasoline was offered in tank car and tank truck lots at 4.75 to 5.25 cents on third-grade major and on some independent brands, with a price upward of 8.5 cents on regular major products.

Spot demand for gasoline from out of state accounts was reported as poor to fair, with quotations ranging from 4.75 to 5.75 cents. Retail conditions in the Pacific Northwest were improved late in the week with a 3-cent advance in price. At Tacoma and Seattle, where service station prices were as low as 9 cents, including a 5-cent state tax, the new price is 15 cents. At Portland, gasoline now retails at 14 cents in comparison to 10 and 11 cents a week ago.

Retail conditions in the Los Angeles Basin were also slightly improved. Major third-grade gasolines retailed at 9.50 cents, with only a few independent products selling at less than 9 cents. One or two of the larger independent refiners have raised their retail price to 10 cents.

Natural gasoline was practically unchanged at 5 to 5.75 cents. Demand for gas oil was only fair with quotations at $0.80 to $0.85, generally. Fuel oil ranged from $0.45 to $0.50.

ST. PAUL, Minn.—Farmers Union Central Exchange, Inc. here has opened lubricating oil warehouses at Willeston, Dickinson and Minot, N. D. and at Chinook, Mont. for distribution of oils and greases wholesale to companies.

Kansas Dixie Distributors Have Radio Program

WATERVILLE, Kansas, March 21.—The Dixie Distributors of Kansas today presented their third broadcast over station KFBI, Milford, Kansas. The program occupied fifteen minutes and the entertainment was furnished by the Dixie band. This broadcast is supplemented by daily Dixie announcements over this station. A. F. Geyer, secretary-treasurer, states that they have reports that the program has been heard in several other states.

Pennsylvania Markets

Trading Generally Quiet

CLEVELAND, March 19.—Trading was only moderately active in the western Pennsylvania refinery market the past week. Prices were steady throughout most of the week; toward the end, however, lubricating oils reacted slightly.

Gasoline was about the brightest spot in the market. There was no large increase in demand for motor fuel but stocks, by virtue of reduced refinery runs, have been worked into good shape and the current jobbing demand has been sufficient to keep the market free of distress offerings. With normal increase in spring buying, the opinion generally has been expressed that gasoline prices should have no trouble in moving upward.

U. S. Motor gasoline the past week was quoted by most sellers at 4.25 to 4.5 cents and offerings late in the week were none too free at the lower figure.

There was steady demand for fuel oil from refiners for cracking stock. The commodity was offered sparingly in the open market. Less 36-40 fuel oil was available at 2.875 cents and refiners in some districts advanced their quotations 0.125 to 0.25 cent with some reporting sales at the higher prices.

The recent cold weather has stimulated kerosine demand to prevent further easing in prices for this product. At the same time it has kept motor oil buyers out of the market. A feeling of uneasiness regarding lubricating oils was noted on the part of many refiners late the past week.

Bright stock and neutral oils were quoted 0.25 to 0.5 cent lower and trading generally was slow.

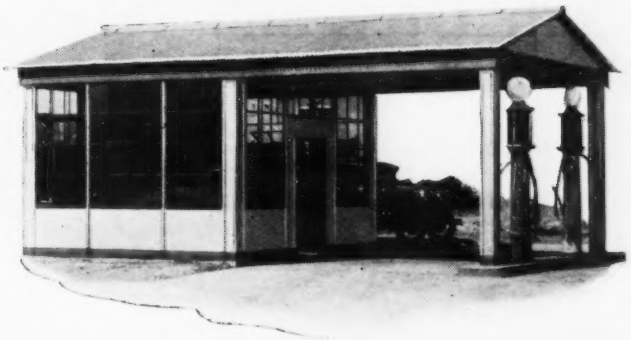
Wax was in fair demand with 122-124 quoted generally at 2.05 to 2.125 cents and 124-126 at a minimum of 2.125 cents, per pound, New York.

Italy Forces Alcohol Blending

WASHINGTON, March 19.—A ministerial decree in Italy has been issued which will force mixing of alcohol with motor fuel according to a report from I. H. Taylor, Department of Commerce trade commissioner at Milan.

For every importation of 12,000 litres of gasoline an importer must buy 428 litres of alcohol to be mixed with a part of the gasoline on an 80-20 basis. Under the decree about 85 per cent of the gasoline imported may be sold unmixed.

Denmark imported 926,250 barrels of crude and fuel oil during the first nine months of 1931; 1,680,000 barrels of gasoline; 502,300 barrels of kerosine and 209,675 barrels of lube oils.



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Birtank all-steel Filling Stations are cool in summer and warm in winter on account of the special corrugated asbestos roof. Oil companies are enthusiastic in praise of them.

Birtank stations are neat and attractive in appearance, easy to erect with unskilled labor. The all-steel construction reduces fire hazard to a minimum and permits 100% salvage if it ever is desired to move the station to a different location. These stations are furnished with or without driveway canopy. Write for illustrated bulletin and prices.

Birmingham Tank Company, Birmingham, Ala. and Verona, Pa.

Sales Offices: Birmingham, Verona, Pa., New York Tampa, New Orleans

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Gasoline And Other Motor Fuels

by Ellis and Meigs, is a book which gives a survey of the field and a description of practically every process of making gasoline and most other motor fuels of promise or prominence.

The price of the book is $10. Just send us your check and we will mail a copy of it to you.

National Petroleum News, 1213 W. Third St., Cleveland, Ohio

Eastern Domestic Markets

Gasoline Markets Generally Steady

Staff Special

NEW YORK, March 19

GASOLINE markets along the Atlantic seaboard were generally steady during the week ended March 19. The New York harbor market moved slightly higher early in the week. On March 18 the Standard Oil Co. of New York advanced tank wagon and service station prices 0.2 cent in Metropolitan New York, except Staten Island.

Low octane gasoline became scarce in the New York harbor market early in the week. Virtually all of the gasoline offered in the open market was above 65 octane. The grade below 65 octane was held at 5.75 cents. Sales of higher octane gasoline were made at 5.75, 5.875, and 6 cents. The majority of sales were made at 5.875 cents. Sales at 5.75 cents were made by New York sellers in a few instances where competition was encountered from Philadelphia and Baltimore sellers.

The Philadelphia market was steady at 5.75 cents for the above 65 octane grade. The lower octane grade was scarce and was held at the same price as the high octane material. Sellers reported that March shipments were none too good, but improved buying was expected for April.

In the Baltimore market there was a wider range of selling prices than in the other two markets. The lower octane gasoline was available at 5.5 cents whereas the higher octane was sold at prices ranging from 5.625 to 5.875 cents.

Little change was noted in New England gasoline markets. Selling prices at Boston and Providence remained at 6 cents for the lower octane grade and 6.5 cents for the higher. Tank-truck deliveries into districts ordinarily supplied by tank car shippers, at prices under tank car delivered prices, was causing tank car sellers considerable concern.

Retail markets generally were steady in New England. One exception was Springfield where the prevailing level was 1 cent below normal.

Burning oils showed a sagging tendency in Boston as the demand began to decline. While posted prices remained generally at 3.75 and 4.75 cents for heavy and light furnace oil, respectively, concessions in prices were made in a few instances. The same oils were quoted at 3.5 and 4.5 cents at New York.

Bunker oil, Grade C, continued to be quoted at $0.60 per barrel at Boston and New York. The Philadelphia market turned toward higher prices. While bunkering of ships continued to be done at $0.60 generally, tank car business was done at $0.65 to $0.70 per barrel.

Diesel oil postings were unchanged at $1.30 per barrel at New York and Boston.

Gulf Coast Markets

U. K. Buyers Take 3 Cargoes of Bunker Coal

NEW YORK, March 19—Cargo markets at the Gulf were fairly active during the week just ended. Three cargoes of fuel oil were reported sold to United Kingdom buyers, realizing actual business out of inquiries which have been pending for some time. Prices for bunker oil were advanced slightly following the sales. Two cargoes of gasoline were sold to a domestic consumer-buyer. Several major companies were likewise looking for high octane gasoline. One foreign inquiry came into the market.

Late in the week a French buyer inquired for approximately 85,000 barrels of 64-66, 375 end point gasoline for late April or early May loading. This is the first sign of foreign interest in American gasoline in several weeks.

Following the sales of the three cargoes of bunker oil, suppliers advanced their prices to $0.42 per barrel. The gas oil market reflected no softening in spite of declining demand. Kerosine prices likewise are steady in spite of little demand for the product.

High octane gasoline for coastwise shipment was advanced to 4.75 to 5 cents by most suppliers early in the week. No sales were made at the higher prices. The last sale reported was at approximately 4.5 cents.

The third cargo of Roumanian gasoline was expected in Baltimore on March 20 for reshipment to a Detroit buyer.

Bureau Favors Doubling Gas Tax

WASHINGTON, March 21.—The national government's bureau of efficiency broke into a local tax matter this week with a recommendation that the gasoline tax in Washington be raised from 2 to 4 cents and that the taxes on the heavier trucks, from three tons upward, be sharply increased. The bureau, to the extent of the proposed doubling of the gasoline tax, backed up a bill already passed by the House of Representatives and pending in the Senate.

The bureau recommends that the gasoline tax be required to bear all the expenses of highway construction and maintenance except a relatively small contribution by owners of abutting property, all the expenses of the traffic regulating force and a large share of the cost of bridges.

Complete One-Stop in Tennessee

LEBANON, Tenn.—A one-stop service station has been completed at Murfreesboro, Tenn., by the People's Service Station, with headquarters here. The company is wholesale distributor of Sinclair products in this territory.

The company is also installing additional storage at its Lebanon bulk plant to handle third-grade gasoline, and is also making installations in Wilson county, where it will buy its gasoline in tank cars. Completely furnished rest rooms and other modern conveniences will be installed.

ROLLING FORK, Miss.—Sharkey-Issaquena Farm Bureau here reports that the merchandising idea it is practicing is an individual canvas of farmers in its territory, giving them oil engineering service in the operation and care of farm tractors. It sells in drum lots for the convenience of farmers.

It is making an organized effort to oppose added taxes on motor fuels and oils.

Wax Markets

Trading Slow

NEW YORK, March 19—Little activity was reported in New York and New Orleans wax markets during the week ended March 19. Prices were unchanged for the fully refined grades over the levels of the previous week. Demand was exceptionally slow, according to reports from most sources. There were few inquiries from foreign buyers.

Scale waxes were quoted at 2 cents and upward in both markets. Demand generally was slow. Efforts of buyers to shade 2 cents met with little success.

Switzerland imported 1,287,560 barrels of crude oil during the first 10 months of 1931; 154,330 barrels of kerosine; 127,220 barrels of lubricating oils; and 509,325 barrels of fuel oil.

* * *

Imports of paraffin wax into Switzerland in the first 10 months of 1931 were 3,020,300 pounds; lubricating greases 330,690 pounds; and petrolatums, 619,500 pounds.

On The Lazy Bench

He Left Town

The society editor being sick, the managing editor told the police editor to do her work. One of the items written by the police editor nearly caused a libel suit. It was: "Mr. and Mrs. John Doe announce the marriage of their alleged daughter, Mary Ann, to Richard Roe."

—The Gas Line
West Penn Oil Co.

* * *

When the Dove Coos

Magistrate (to woman involved in matrimonial dispute): "Did you and your husband quarrel on Friday night?"

Wife: "And the next day pay day? Certainly not!"

—Our Sun
Sun Oil Co.

* * *

Father—"What do you expect to be when you get out of college?"

Son—"An old man, father."

—Electrical News
Petroleum Industry Electrical Association

* * *

Ain't That the Truth

An agitator was addressing a band of strikers. "Only $12 a week!" he yelled. "How can a man be a Christian on $12 a week?"

"How," yelled a voice, "can he afford to be anything else?"

—Pure Oil News
Pure Oil Co.

* * *

Johnnie Neuter Genders

Teacher: "Johnnie, what are the two genders?"

Johnnie: "Masculine and feminine. The masculines are divided into temperate and intemperate and the feminines into frigid and torrid.

—Shell Globe
Shell Petroleum Corp.

* * *

A flea and an elephant walked side by side over a little bridge.

Said the flea to the elephant after they had crossed over: "Boy, we sure did shake that thing!"

National Safety Council
—The Safe Driver

* * *

A Fast Bunch

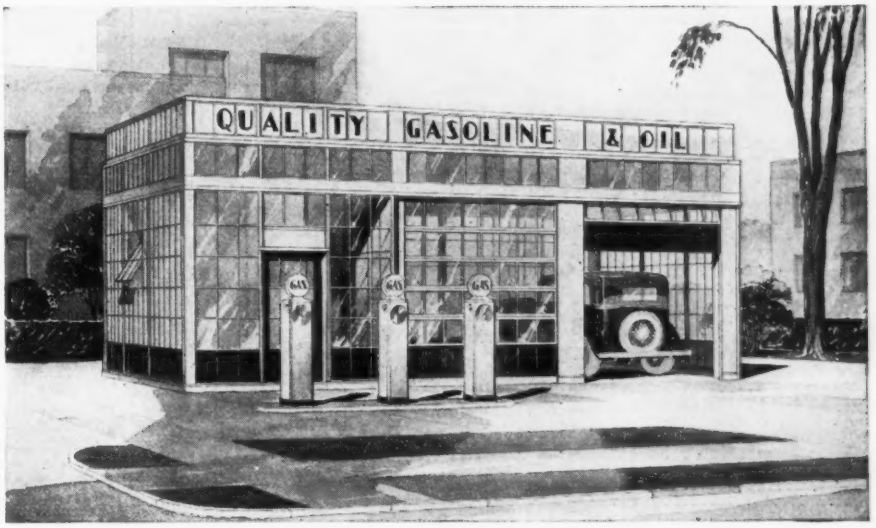
The treasurer of the Ladies' Aid Society of a Greensburg church made a deposit for her organization in a Greensburg bank recently. At the deposit window she spoke to the teller whom she knew. The deposit was a considerable one for a church organization and as she passed in the money, she said: "Here's the aid money."

The teller understood her to say "Here's the egg money." Then came the break.

"Well it looks as if the old hens had been laying pretty good lately," was his comment.

—The Gas Line
West Penn Oil Co.

MODERN SUPER-SERVICE STATIONS WILL ATTRACT MORE BUSINESS



Sparkling Glass and Brilliant Porcelain Enamel Colors urge Motorists to stop. Can be enlarged as needed.

The best advertisement you can have is an attractive, efficient and striking-looking building. Motorists are particular where they buy — that is why operators of Truscon Super-Service Stations enjoy greater gasoline and oil sales and get more greasing jobs. These Super-Service Stations are modern in every sense — a wide range of brilliant porcelain enamel colors available—large glass areas—efficiently designed—fireproof—steel doors and steeldeck roof—building can be added to, or taken down and re-erected without damage—and the cost is mighty attractive, too! Write for details and prices.

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO
Sales and Engineering Offices in all Principal Cities

TURN to the classified advertising page near the back of this issue. You will find some interesting items there • • • • • • •

Complete Seaboard Market

Eastern Domestic Market

(Prices for tank car lots, f. o. b. refinery or seaboard terminal, representing majority of sales and quotations. Prices shown below do not include inspection tax levied in Florida and South Carolina.)

	Prices March 21	Prices March 14	Prices March 7
U. S. MOTOR GASOLINE, Below 65 Octane Number			
New York harbor	5.75	5.50 – 5.75	5.50 – 5.75
Boston	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Providence	6.00 – 6.25	6.00 – 6.25	6.00 – 6.25
Philadelphia District	5.75	5.50 – 5.75	5.50 – 5.75
Baltimore District	5.50 – 5.75	5.50 – 5.75	5.50 – 5.75
U. S. MOTOR GASOLINE, 65 Octane Number and Above			
New York harbor	5.875– 6.00	5.75 – 6.00	5.75 – 6.00
Portland district	6.50 – 7.00	6.50 – 7.00	6.50 – 7.00
Boston district	6.50	6.50	6.50
Providence district	6.50	6.50	6.50
Philadelphia district	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
Baltimore district	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00
Norfolk district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Charleston district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Savannah district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
Jacksonville district	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
‡DOMESTIC AVIATION GASOLINE, Below 73 Octane Number			
New York harbor	9.00	.....	.....
Philadelphia	9.00	.....	.....
Baltimore	9.00	.....	.....
Boston	9.00	.....	.....
‡DOMESTIC AVIATION GASOLINE, *73 Octane Number and Above			
New York harbor	11.00 –12.00	.....	.....
Philadelphia	11.00 –12.00	.....	.....
Baltimore	11.00 –12.00	.....	.....
Boston	11.00 –12.00	.....	.....

*Octane determination basis 300°F; 600 R.P.M.

‡Prices are based on U. S. Gov't. specifications or better. Present Gov't. specifications require distillation range of 5% recovery at not more than 167°F. and not less than 122°F.; 50% recovery at 221°; 90% at 311°; 96% at 347° end point 374°F. Gasoline of fighting grade specifications in some instances sells at a premium over domestic aviation grade. Prices represent majority of quotations.

WATER WHITE KEROSINE			
New York harbor	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Philadelphia district	5.50	5.50	5.50
Baltimore district	5.50	5.50	5.50
GAS OIL: 28-34 Gravity			
New York harbor	3.50	3.50	3.50
Boston district	3.75	3.75	3.75
FURNACE OIL: 36-40 Gravity			
New York harbor	4.50	4.50	4.50
Boston district	4.75	4.75	4.75
GRADE C BUNKER OIL (Lighterage 5c per bbl. additional)			
New York harbor	$0.60	$0.60	$0.60
Boston district	$0.60	$0.60	$0.60
DIESEL OIL			
New York harbor	$1.30	$1.30	$1.30

New York Export Market

(Lubricating oils in cents per gal. in bbls. F.a.s. New York, except where otherwise noted)

	March 21	March 14	March 7
CYLINDER OILS (Pennsylvania Products)			
Bright stock, No. 8 color	28.00 –29.00	28.00 –29.00	28.00 –29.00
Bright stock, No. 6½ color diluted	27.00 –28.00	27.00 –28.00	27.50 –28.00
600 D filtered	25.50 –26.00	25.50 –26.00	26.00
600 Warren E filtered	22.50 –23.00	22.50 –23.00	22.50 –23.00
600 stm. refd. unfiltered	19.50 –20.25	19.50 –20.25	19.50 –20.25
650 stm. refd. unfiltered	22.00 –23.00	22.00 –23.00	22.00 –23.00
600 flash steam refined	23.00 –24.00	23.00 –24.00	23.50 –24.00
630 flash, steam refined	27.50 –30.00	27.50 –30.00	28.50 –30.00
RED PARAFFIN OILS (Vis. 100°) (Prices represent bulk shipment in tankers F.a.s. New York).			
300 vis. No. 6½ color	9.50	9.50	9.50
250 vis. No. 6 color	9.00	9.00	9.00
200 vis. No. 6 color	8.25	8.25	8.25
PALE PARAFFIN OILS (Vis. 100°) (Prices represent bulk shipment in tankers F.a.s. New York).			
230 vis. No. 3¾ color	10.00	10.00	10.00
180 vis. No. 3¼ color	9.50	9.50	9.50
100 vis. No. 2¼ color	5.00	5.00	5.00

Wax Market

(Prices in cents per pound, f. a. s. carload lots. Tests made by A. S. T. M. method with melting points converted into A. M. P. by adding 3° F.)

NEW YORK	March 21	March 14	March 7
124-126 Yellow crude scale	2.00	2.00	2.00
122-124 White crude scale	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
124-126 White crude scale	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
123-125 Fully refined	3.00	3.00	3.00
125-127 Fully refined	3.125	3.125	3.125
128-130 Fully refined	3.25	3.25	3.25
130-132 Fully refined	3.375	3.375	3.375
133-135 Fully refined	4.125	4.125	4.125
135-137 Fully refined	4.25	4.25	4.25
NEW ORLEANS			
124-126 Yellow crude scale	2.00	2.00	2.00
122-124 White crude scale	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
124-126 White crude scale	2.00 – 2.125	2.00 – 2.125	2.00 – 2.125
123-125 Fully refined	2.85 – 3.00	2.85 – 3.00	3.00
125-127 Fully refined	2.90 – 3.00	2.90 – 3.00	3.00
128-130 Fully refined	3.00 – 3.25	3.00 – 3.25	3.25
130-132 Fully refined	3.375	3.375	3.375
133-135 Fully refined	4.25	4.25	4.25

Gulf Coast Bulk Market

(Prices are f. o. b. Gulf oil terminals representing sellers' opinions covering bulk shipments of 20,000 barrels or more, for export and / or coastwise shipment unless otherwise noted.)

GASOLINE	Prices March 21	Prices March 14	Prices March 7
U. S. MOTOR GASOLINE (Domestic shipment)			
Below 65 octane number	4.25 – 4.50	4.25– 4.50	4.125– 4.25
65 octane number and above	†4.75 – 5.00	†4.75 – 5.00	4.375– 4.50
41-43 w.w. kerosine	4.00 – 4.125	4.00 – 4.125	4.00 – 4.125
†Nominal.			
Export Shipment			
U. S. Motor gasoline	4.00 – 4.125	4.00 – 4.125	4.125– 4.25
60-62, 400 e.p. gasoline	4.125– 4.25	4.125– 4.25	4.25 – 4.375
61-63, 390 e.p. gasoline	4.25 – 4.375	4.25 – 4.375	4.375– 4.50
64-66, 375 e.p. gasoline	4.25 – 4.50	4.25 – 4.50	4.50 – 4.75
U. S. Motor, (cases cargoes)	$1.50	$1.50	$1.50
64-66, cases (cargoes)	$1.60	$1.60	$1.60
KEROSINE			
41-43 water white	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
41-43 prime white	3.875– 4.00	3.875– 4.00	3.875– 4.00
Water white, cases (cargoes)	$1.40	$1.40	$1.40
Prime white, cases (cargoes)	$1.30	$1.30	$1.30
GAS & BUNKER OILS			
*26-30 translucent gas oil	2.625– 2.75	2.50 – 2.625	2.50 – 2.625
*30 plus translucent gas oil	2.75 – 3.00	2.75 – 3.00	2.75 – 3.00
Grade C bunker oil, for ships' bunkers, per bbl.	$0.45	$0.45	$0.45
Grade C bunker oil, per bbl. in cargoes	$0.42 –$0.43	$0.40 –$0.41	$0.40 –$0.41
*Less than ½ of 1% sulphur.			
MEXICAN CRUDE AND BUNKER OILS (f.o.b. Steamer, Tampico)			
Heavy Panuco crude taxes to be paid, per bbl.	$0.50 –$0.53	$0.47 –$0.50	$0.47 –$0.50
Grade C bunker oil for bunkering, taxes paid, per bbl.	$0.55	$0.55	$0.55
SOUTH TEXAS LUBRICATING OILS (Viscosity at 100°F. cold test 0 Tanker, f. o. b. Gulf oil terminals.)			
100 vis. No. 2 unfiltered pale	4.375– 4.50	4.375– 4.50	4.375– 4.50
200 vis. No. 3 unfiltered pale	5.50 – 6.00	5.50 – 6.00	5.50 – 6.00
300 vis. No. 3 unfiltered pale	6.25 – 6.75	6.25 – 6.75	6.25 – 6.75
500 vis. No. 3½ unfiltered pale	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
750 vis. No. 4 unfiltered pale	7.50 – 8.50	7.50 – 8.50	7.50 – 8.50
1200 vis. No. 4 unfiltered pale	9.00 – 9.50	9.00 – 9.50	9.00 – 9.50
200 vis. No. 5-6 red oil	4.50 – 5.00	4.50 – 5.00	4.50 – 5.00
300 vis. No. 5-6 red oil	5.25 – 5.75	5.25 – 5.75	5.25 – 5.75
500 vis. No. 5-6 red oil	6.00 – 6.50	6.00 – 6.50	6.00 – 6.50
750 vis. No. 5-6 red oil	7.00 – 7.25	7.00 – 7.25	7.00 – 7.25
1200 vis. No. 5-6 red oil	8.50 – 9.00	8.50 – 9.00	8.50 – 9.00

Pacific Export Market

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gallon, except where otherwise noted.)

	March 21	March 14	March 7
Gasoline, U. S. Motor, 53-55 Gravity	3.75 – 4.25	3.75 – 4.25	3.75 – 4.25
Gasoline, 400 e.p. blend 65 Octane No. and above	4.00 – 5.00	4.00 – 5.00	4.00 – 5.00
Gas oil, 30-34 per bbl.	$0.80 –$0.95	$0.80 –$0.95	$0.80 –$0.95
Diesel oil, 27 plus, per bbl.	$0.80 –$0.90	$0.80 –$0.90	$0.80 –$0.90
Bunker oil, 14-18 per bbl.	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
Fuel oil, 14-18 per bbl.	$0.55 –$0.70	$0.55 –$0.70	$0.55 –$0.70
Kerosine, 38-40 w.w., 125-150 flash, per gal.	4.25 – 4.75	4.25 – 4.75	4.25 – 4.75
Cased Goods			
Gasoline, U. S. Motor	$1.35 –$1.50	$1.35 –$1.50	$1.35 –$1.50
Gasoline, 400 e.p. blend	$1.45 –$1.65	$1.45 –$1.65	$1.45 –$1.65
Kerosine, 38-40 w.w., 125-150 flash	$1.15 –$1.35	$1.15 –$1.35	$1.15 –$1.35
Kerosine, prime white	$1.05 –$1.15	$1.05 –$1.15	$1.05 –$1.15

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 pounds, British sterling) to U. S. ports, cents per barrel

	March 21			
	Crude Last Paid	&/or Fuel Owners Ask	Refined Oil Last Paid	&/or Spirits Owners Ask
Calif.-U.K./Continent*	12/6	15/-20/	17/6	17/-18/
Gulf-U.K./Continent*	8/6	8/-10/	9/	9/-10/
Calif.-N. Atlantic (not E. of N. Y.)	47.5c	45-50c	40c	42-45c
Gulf-N. Atlantic** (not E. of N. Y.)	15c	†14-15c	14c	14-16c

*Continental ports in range between Bordeaux and Hamburg, both inclusive.
**Venezuela loading same rate; Tampico, 2 to 3c per bbl. additional.
†Owners ask 15-16c April loading

Alfalfa Bill Invades Oil News Field

TULSA, March 17.—As though the established oil trade publications weren't having enough trouble, Alfalfa Bill Murray has set up his stand right in the middle of the block.

A month ago the Blue Valley Farmer, personal weekly journal of the governor, mostly devoted to telling what a great president Murray would be, established an oil page. In the issue of Feb. 25, an appeal was made under the name of George W. Wetzel, who calls himself the oil editor of the paper. Mr. Wetzel said he had assured the governor that an oil page would bring in much circulation; that it is his belief that he can get 500,000 new subscribers on the strength of the new "feature."

Mr. Wetzel used an appeal for subscriptions that other papers lack. He said: "Folks, I know that Governor Murray is watching this oil page. He is waiting to see how you will cooperate with me in my drive for 500,000 circulation. He will be watching every name printed in my Honor Roll."

That roll of immortals was duly published in the issue of March 3. It contained 111 names, leaving only 499,889 between him and his goal. The governor, in a signed statement, thanked those who are helping Mr. Wetzel by sending in the required dollar.

Subjects featured on the oil page this week are: increase of imports into U. S.; order of the Corporation Commission on Oklahoma City field; meeting of the Oil States Advisory Committee, headlining the election of Cicero I. Murray as executive director, and "Diamond Thief Poses as Oil Man."

Foreign Refinery Survey Is Published

WASHINGTON, March 17.—A survey of petroleum refineries in foreign countries in 1931 has just been issued by the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce as Trade Information Bulletin No. 784. Copies may be obtained from the Government Printing Office at 10 cents each.

The survey shows the number of refineries operating and building in each country and the name of the operating companies. Considerable data is given on capacities, crude run and output of refined products.

Data on the number of plants and capacities follows closely that given by C. J. Bauer of the Standard Oil Co. of New Jersey in an address before the National Petroleum Association last fall and published in the Sept. 23 issue of NATIONAL PETROLEUM NEWS.

S.O. California Makes Odorant for Gas

LOS ANGELES—A satisfactory product for odorizing natural gas to warn of leaks without a nauseating or toxic effect has been developed by the Standard Oil Co. of California, according to a recent paper on safety in gas distribution by F. W. Thompson and A. E. DeBurn, of the Pacific Pipe & Supply Co., Los Angeles.

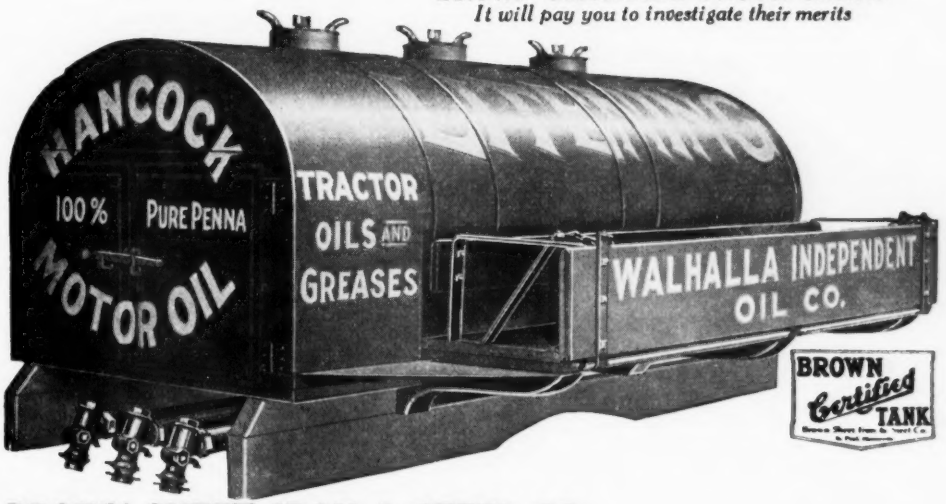
Effective odorization, the paper points out, must be continuous and maintain a constant odorant-gas ratio. It requires an automatic injecting device to proportion the odorant to the constantly fluctuating flow of gas.

Apparatus for this purpose has been built by the Pacific Gas & Electric Co., but since the atomizing nozzles of this apparatus were designed for an odorant difficult to vaporize at existing line pressures, the Standard superseded this odorant oil by one more volatile, known as Calodorant. This product requires no atomization and the liquid may be fed into the line where immediate vaporization takes place.

ORANGE, Mass.—The Orange Co-Operative Coal Co. reports having sold about 31,000 gallons of kerosine in January. It sells oil for fuel only.

BROWN GUARANTEED OIL-TIGHT TRUCK TANKS

From coast to coast BROWN CERTIFIED TANKS are the standard of comparison. There are no secrets nor patents on these tanks, just good, honest, full weight material, correctly built by real tradesmen.
When you buy a truck tank you dont want to purchase substitutes, nick-nacks, nor freak experiments, You WANT, and have a RIGHT TO EXPECT, EFFICIENT SERVICE, OIL TIGHT DELIVERY, and ATTRACTIVE APPEARANCE.
These are the reasons why hundreds of successful Oil Companies have standardized on
BROWN CERTIFIED TRUCK TANKS
It will pay you to investigate their merits



Partial list of our Products:
Bulk Storage Tanks. Double Electric Welded.
Truck and Tractor Tanks.
Lube Oil Tanks, Steam Heated and Insulated.
Compounding Kettles SteamJacketedwith Agitators.
Northwestern Steel Barrel Headquarters.

BROWN SHEET IRON & STEEL CO. **ST. PAUL, MINN.**
Canadian Associate: Canadian Brown Steel Tank Co., Ltd., Brandon, Manitoba

—TEAR OUT THIS COUPON AND MAIL IT TODAY—

We are interested in your tanks. Send your catalog and prices.

Make of Truck.....Year.....We operate..... (number) Tank Trucks

Other equipment on which you may send prices.....

Name.....Address.....

Tank Wagon, Service Station Markets for Gasoline and Kerosine

(OIL PRICE HANDBOOK has t.w. and s.s. markets for a whole year, arranged for quick reference)

These Prices in Effect March 21, 1932, as Posted by Principal Marketing Companies

S. O. NEW JERSEY TERRITORY

Standard Gasoline	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Atlantic City, N. J.	12.7	3	15.7	16.2	11.5
Newark, N. J.	11.7	3	14.7	15.2	8.5
Annapolis, Md.	12.2	4	16.2	16.7	10
Baltimore, Md.	11.4	4	15.4	15.9	8
Cumberland, Md.	13.2	4	17.2	17.7	12
Washington, D. C.	11.9	2	13.9	14.4	10
Danville, Va.	13	5	18	18.5	11.8
Norfolk, Va.	11.5	5	16.5	17	10.3
Petersburg, Va.	12.5	5	17.5	18	11.3
Richmond, Va.	12	5	17	17.5	10.7
Roanoke, Va.	13.2	5	18.2	18.7	12
Charleston, W. Va.	12.7	4	16.7	17.2	11.5
Parkersburg, W. Va.	11.4	4	15.4	15.9	10.2
Wheeling, W. Va.	12.6	4	16.6	17.1	11.4
Charlotte, N. C.	13	6	19	19	10.7
Hickory, N. C.	13.8	6	19.8	20.3	12.6
Mt. Airy, N. C.	13.7	6	19.7	20.2	12.5
Raleigh, N. C.	13.4	6	19.4	19.9	12.2
Salisbury, N. C.	12	6	18	18	12.5
Charleston, S. C.	11.5	6	17.5	18	10.3
Columbia, S. C.	13.4	6	19.4	19.9	12.2
Spartanburg, S. C.	13.7	6	19.7	20.2	12.5

Dealer Discount: gasoline, 2½c off retail t.w. price, except Maryland, New Jersey and Washington, D. C. where discount is 3½c.

Kerosine Discount: 1c off t.w. price for 25 gals. and over, thru territory except New Jersey, effective June 9, 1931.

S. O. NEW YORK

Socony Gasoline

Greater New York City					
Boroughs of Manhattan, Bronx, Queens & Kings	10.5	3	13.5	15.5	9
Borough of Richmond	10.7	3	13.7	15.7	9
Albany, N. Y.	12	3	15	16	9.5
Buffalo, N. Y.	12	3	15	16	8.5
Rochester, N. Y.	12	3	15	16	8.5
Syracuse, N. Y.	12.8	3	15.8	16.8	9
Boston, Mass.	11.5	3	14.5	15.5	8.5
Augusta, Me.	12.8	4	16.8	17.8	9
Manchester, N. H.	12.4	4	16.4	17.4	8.5
Burlington, Vt.	13.3	4	17.3	18.3	9
New Haven, Conn.	12.6	2	14.6	15.6	8.5
Providence, R. I.	11.5	2	13.5	14.5	8.5

Dealer discount: on gasoline 2c off posted t.w. price, except 3c in New York City.

ATLANTIC REFINING

Atlantic White Flash Gasoline

Pittsburgh, Pa	12	3	15	16	11
Philadelphia, Pa.	12	3	15	16	11
Allentown, Pa.	12	3	15	16	11
Erie, Pa.	12	3	15	16	11
Scranton, Pa.	12	3	15	16	11
Altoona, Pa.	12	3	15	16	11
Dover, Del.	12	3	15	16	11
Wilmington, Del.	12	3	15	16	11
Boston, Mass.	11.5	3	14.5	15.5	8.5
Springfield, Mass.	10.5	3	13.5	14.5	8.5
Worcester, Mass.	12.3	3	15.3	16.3	8.5
Fall River, Mass.	11.5	3	14.5	15.5	8.5
Providence, R. I.	11.5	2	13.5	14.5	8.5
Hartford, Conn.	12.5	2	14.5	15.5	8.5
New Haven, Conn.	12.6	2	14.6	15.6	8.5
Atlantic City, N. J.	12.7	3	15.7	16.2	11.5
Camden, N. J.	11.8	3	14.8	15.3	10.6
Trenton, N. J.	12.2	3	15.2	15.7	11
Annapolis, Md.	12.2	4	16.2	16.7	10
Baltimore, Md.	11.4	4	15.4	15.9	8
Hagerstown, Md.	11.5	4	15.5	15.5	10.7
Richmond, Va.	12	5	17	17.5	10.7
Wilmington, N. C.	11.6	6	1.76	18.1	10.4
Brunswick, Ga.	12	6	18	19	*14
Jacksonville, Fla.	12	7	19	20	9

Dealer discount: on gasoline, "split dealers," 2c off posted t.w. price; to 100% dealers, 2.5c; to authorized dealers (under lease 1c per gal.), 2.5c off posted s.s. price. Commercial accounts, under contract for one year, are sold at a discount off the posted prices, with due consideration to competition.

*Georgia kerosine prices include 1c state tax.

Latest Tank Wagon Price Changes

Gasoline

S. O. New York—T.w. and s.s. up 2/10c, through greater New York City, to 13.5c and 15.5c, including 3c tax, **March 18.** Borough of Richmond unchanged.

Atlantic Refining—T.w. and s.s. cut 2c, Springfield, to 13.5c and 14.5c, including 3c tax, **March 8.**

T.w. and s.s. up ½c, Richmond, to 17c and 17.5c, including 5c tax, **Feb. 17.**

T.w. and s.s. up 1c, Philadelphia, to 15c and 16c, including 3c tax, **March 21.**

S. O. Ohio—All gasolines, except aviation, t.w. and s.s. up ½c, through Ohio, to statewide prices of 16c and 16.5c respectively on Sohio X-70, **March 16.** Renown Green s.s. price 14.5c statewide. All counties where prices had been below statewide level also were raised ½c.

T.w. and s.s. cut 1c, through Medina, Portage and Summit counties, making X-70 14.5c for both t.w. and s.s. in all three counties, **March 17.**

S. O. Kentucky—Crown gasoline: t.w. cut 3c, s.s. 2c, Macon, to 17c and 18c, including 6c tax, **March 10.**

T.w. up ½c, s.s. up 1.5c, Vicksburg, to 17c and 18c including 5.5c, **March 14.**

T.w. only cut 1c, Savannah, to 18c, including 6c tax, **March 15.**

Kyso Green: T.w. and s.s. cut 1c, Macon, both to 16c, including 6c tax, **March 10.**

S. O. Indiana—Blue gasoline: T.w. and s.s. cut 1c, Detroit, to 11.5c including 3c tax, **March 18.**

Red Crown t.w. only cut 2c, Detroit, to 12.5c, including 3c tax, **March 18.**

S. O. Louisiana—Standard gasoline t.w. and s.s. up 1c, Lake Charles, to 17.5c including 6c state and parish taxes, **March 19.**

Magnolia Petroleum—Blue gasoline: T.w. and s.s. cut 1c, Houston and El Paso, to 10c at Houston and 9c at El Paso, including 4c tax, **Feb. 19** and **Feb. 29** respectively.

T.w. and s.s. up 2c, Muskogee, both to 13c, including 4c tax, **Feb. 12.**

T.w. and s.s. up 2c, Tulsa, both to 12c, **Feb. 23.**

T.w. and s.s. cut 1c, Oklahoma City, both to 10c, **March 2.**

Continental Oil—S.s. only cut 2c, Twin Falls, to 22c, including 5c tax, **March 5**; dealer discount of 2c off t.w. price put into effect at same time.

Kerosine

Atlantic Refining—Kerosine cut 1c, Hagerstown, to 10.7c t.w., **Feb. 17.**

Correction: T.w. price kerosine at Brunswick has been 14c, including 1c state tax, since March 11, 1931, rather than 13c as shown in past issues.

S. O. OHIO

Sohio X-70	T.W.	Tax	Total T.W.	S.S	Kerosine T.W
Ohio statewide	12	4	16	16.5	11.5
Ashtabula, Belmont, Butler, Columbiana, Medina, Portage, Scioto, Summit and Washington counties:	10.5	4	14.5	14.5	11.5
Renown Green (Third Grade)					
Ohio statewide				14.5	11 5
Ashtabula, Belmont, Butler, Columbiana, Medina, Portage, Scioto, Summit and Washington counties:				12.5	11.5

Dealer and commercial consumer discount: Sohio X-70 gasoline, 2c off t.w. price; Renown Green, 1.5c off s.s. price (sold to commercial consumers beginning March 7). Kerosine, 2.5c off t.w. In counties where prices are below statewide level, discount on Sohio X-70 gasoline is generally 2.5c.

S. O. KENTUCKY

Crown Gasoline					
Lexington, Ky.	12	5	17	18	10
Louisville, Ky.	10	5	15	16	10
Paducah, Ky.	12	5	17	18	10
Covington, Ky.	11	5	16	17	10
Jackson, Miss.	10.5	5.5	16	17	10
Vicksburg, Miss.	11.5	5.5	17	18	8
Birmingham, Ala.	14.5	*6	20.5	20.5	12
Mobile, Ala.	12.5	*7.5	20	20	10
Montgomery, Ala.	14.5	*7	21.5	21.5	13.5
Macon, Ga.	11	6	17	18	*12
Atlanta, Ga.	13.5	6	19.5	19.5	* 9
Augusta, Ga.	14	6	20	21	*14
Savannah, Ga.	12	6	18	19	*11
Jacksonville, Fla.	12	7	19	20	11
Miami, Fla.	14	7	21	22	13
Tampa, Fla.	12	7	19	20	14
Pensacola, Fla.	12	*8	20	20	13
Kyso Green (Third Grade)					
Lexington, Ky.	10	5	15	15	10
Louisville, Ky.	7.5	5	12.5	12.5	10
Paducah, Ky.	10	5	15	15	10
Jackson, Miss.	8.5	5.5	14	14	10
Vicksburg, Miss.	9.5	5.5	15	15	8
Birmingham, Ala.	11.5	*6	17.5	17.5	12
Mobile, Ala.	9.5	*7.5	17	17	10
Montgomery, Ala.	11.5	*7	18.5	18.5	13.5
Atlanta, Ga.	10	6	16	16	* 9
Augusta, Ga.	13	6	19	19	*14
Macon, Ga.	10	6	16	16	*12
Jacksonville, Fla.	11	7	18	18	11
Tampa, Fla.	11	7	18	18	14

Dealer discount: on Crown, Kyso Green and Ethyl gasolines, 2c off t.w. price.

At Atlanta and Birmingham 1c additional temporary discount on gasoline: Atlanta, 3c discount on kerosine. Discounts off t.w.

***Taxes:** in the state gasoline taxes at following points are included these city and county taxes: Birmingham, 1c city; Mobile, 1c city and 1.5c county; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia kerosine prices include 1c state tax. Montgomery kerosine price includes ½c city tax.

S. O. INDIANA

Standard Red Crown Gasoline

Chicago, Ill.	12	3	15	15	9
Decatur, Ill.	12.5	3	15.5	15.5	9.1
E. St. Louis, Ill.	11.8	3	14.8	14.8	8.3
Joliet, Ill.	12.5	3	15.5	15.5	9.1
Peoria, Ill.	12.5	3	15.5	15.5	9.1
Quincy, Ill.	12.3	3	15.3	15.3	8.9
Springfield, Ill.	12.5	3	15.5	15.5	9.1
Indianapolis, Ind.	12.4	4	16.4	16.4	10.2
Evansville, Ind.	12.2	4	16.2	15.6	10
South Bend, Ind.	12.5	4	16.5	16.5	8.1
Detroit, Mich.	9.5	3	12.5	12.5	9.1
Grand Rapids, Mich.	11.8	3	14.8	14.8	10.7
Saginaw, Mich.	10.2	3	13.2	13.2	10.9
Marquette, Mich.	13	3	16	16	10.9
Green Bay, Wisc.	12.7	4	16.7	16.7	9.5
Madison, Wisc.	12.4	4	16.4	16.4	9.2
Milwaukee, Wisc.	12.2	4	16.2	16.2	9
La Crosse, Wisc.	13.3	4	17.3	17.3	10.1
Minneapolis, Minn.	13.3	3	16.3	16.3	10
Duluth, Minn.	13.6	3	16.6	16.6	10
Mankato, Minn.	13.2	3	16.2	16.2	8.1
Des Moines, Ia.	12.6	3	15.6	15.6	8.1
Davenport, Ia.	12.6	3	15.6	15.6	9.4
Sioux City, Ia.	12.2	3	15.2	15.2	9
Mason City, Ia.	12.6	3	15.6	14.1	9.4
St. Louis, Mo.	11.5	†3	14.5	14.5	8.4
Kansas City, Mo.	12	†3	15	15	7.7
St. Joseph, Mo.	11.6	†3	14.6	14.6	7.6

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel, 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/2c per gal. in a single barrel; 3/10c per gal. in lots of 2 to 10 bbls., 1/5c for 10 to 50 bbls., 2/25c for over 50 bbls.; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 2/25c; Nebraska, 3/50c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. in lots of more than 50 bbls., 1.5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fees only: Iowa, 2/25c; Michigan, 4/5c per gal. for first 2 bbls.; 3.5c for next 3; 2/5c for next 5; 3/10c for next 15; and 1.5c per gal. in lots over 25 bbls.

Tank Wagon, Service Station Markets for Gasoline and Kerosine

These Prices in Effect March 21, 1932, as Posted by Principal Marketing Companies

S. O. INDIANA (*Continued*)

	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Fargo, N. D.	15	3	18	18	12
Grand Forks, N. D.	15.3	3	18.3	18.3	12.3
Minot, N. D.	15	3	18	18	12
Pierre, S. D.	13.1	4	17.1	17.1	10.5
Huron, S. D.	13.4	4	17.4	16	10.8
Wichita, Kans.	10.9	3	13.9	13.9	6.1
Bartlesville, Okla.	9.1	4	13.1	15.1	7.1

†Includes city tax of 1c.

Stanolind Blue Gasoline

Stanolind Blue prices are 1.5c per gal. under Red Crown, except at following points:

Chicago, Ill.	9.5	3	12.5	12.5	9
E. St. Louis, Ill.	10.3	3	13.3	10	8.3
Joliet, Ill.	11	3	14	12.5	9.1
Peoria, Ill.	11	3	14	11	9.1
Quincy, Ill.	9.3	3	12.3	10	8.9
Kansas City, Mo.	10.5	3	13.5	12	7.7
St. Joseph, Mo.	6	†3	9	9	7.6
St. Louis, Mo.	7.5	†3	10.5	10.5	8.4
Detroit, Mich.	8.5	3	11.5	11.5	9.1
Grand Rapids, Mich.	9.8	3	12.8	12.8	10.7
Saginaw, Mich.	8.3	3	11.3	11.1	10.9
Wichita, Kans.	7.1	3	10.1	10.9	6.1
Bartlesville, Okla.	7.6	4	11.6	13.1	7.1
Mankato, Minn.	11.7	3	14.7	12.5	8.1
Minneapolis, Minn.	9	3	12	12	10
Evansville, Ind.	10.7	4	14.7	14	10
Davenport, Ia.	11.1	3	14.1	9.9	9.4
Des Moines, Ia.	6.9	3	9.9	9.9	8.1
Mason City, Ia.	11.1	3	14.1	12.5	9.4
Sioux City, Ia.	6.9	3	9.9	9.9	9
Green Bay, Wisc.	12.2	3	15.2	12.5	9.5
Milwaukee, Wisc.	8.5	4	12.5	12.5	9
Huron, S. D.	11.9	4	15.9	15	10.8

†Includes city tax of 1c.

Discounts to resellers, except in Chicago: (Q.D.A. effective May 11, 1931):
Off s.s. under 75,000 gals.: Ethyl: 3c, Red Crown 2.5c, Blue 1.5c. Off t.w., over 75,000 gals.: Ethyl 4c, Red Crown 3.5c, Blue 2c. (See also last paragraph below).

Chicago reseller discounts: any quantity, Ethyl 4c, "regular" 3.5c, third grade 2c, by principal marketers. Discounts are off s.s. below 75,000 gals., and off t.w. above 75,000 gals.

Consumer discounts, off t.w., outside Chicago: 500 to 75,000 gals., Ethyl 3c, Red Crown 2.5c, Blue 1.5c. Over 75,000 gals., Ethyl 4c, Red Crown 3.5c, Blue 2c.

Chicago consumer discounts, off t.w.: over 500 gals., Ethyl 4c, regular 3.5c, third grade 2c.

Effective Nov. 4, 1931, t.w. buyers who formerly failed to buy enough to get discount, now get 1c off t.w. No change in total discount to contract customers.

S. O. NEBRASKA

Red Crown Gasoline

Omaha, Neb.	10.9	4	14.9	15.9	7
McCook, Neb.	11	4	15	16	7.5
Norfolk, Neb.	12.75	4	16.75	17.75	9.75
North Platte, Neb.	12.75	4	16.75	16.75	10.5
Scottsbluff, Neb.	12	4	16	16	9

Dealer discount: on gasoline off normal s.s. prices: Ethyl 3c; Red Crown 2.5c.

S. O. LOUISIANA

Standard Gasoline

	Posted Retail T.W.	Tax	Total Posted Retail T.W.	Posted Retail S.S.	Kerosine T.W.
Little Rock, Ark.	11.5	6	17.5	17.5	11
Alexandria, La.	10	*6	16	16	†12
Baton Rouge, La.	11.5	5	16.5	16.5	†12
New Orleans, La.	10	*6	16	16	*10
Lake Charles, La.	11.5	*6	17.5	17.5	†12
Shreveport, La.	9.5	5	14.5	14.5	†12
Lafayette, La.	11.5	*6	17.5	17.5	†10
Bristol, Tenn.	12.5	7	19.5	19 5	14
Chattanooga, Tenn.	13.5	7	20.5	20.5	11
Knoxville, Tenn.	14	7	21	21	13.5
Memphis, Tenn.	11.5	7	18.5	18.5	11
Nashville, Tenn.	13	7	20	20	12.5

Blue-Gas (Third Grade)

	Tax	Total Posted Retail S.S.	Kerosine T.W.
Little Rock, Ark.	6	....	12	11
Alexandria, La.	*6	....	12.5	†12
Baton Rouge, La.	5	....	11.75	†12
New Orleans, La.	*6	....	12.5	*10
Lafayette, La.	*6	....	16	†10
Lake Charles, La.	*6	....	15	†12
Shreveport, La.	5	....	10.5	†12
Chattanooga, Tenn.	7	....	17.5	11
Knoxville, Tenn.	7	....	18	13.5
Memphis, Tenn.	7	....	14	11
Nashville, Tenn.	7	....	16	12.5

Open dealer and tankwagon commercial consumer discounts: on Standard gasoline, 2.5c (beginning Feb. 23, 1932) per gal. off posted retail tank wagon price; 2c on kerosine; no discount on Blue-Gas.

Lease and agency discounts: Esso gasoline, 2.5c; Standard gasoline, 2c; Blue-Gas, 1c, off s.s. price, plus 1c per gal. rental.

*Lake Charles, Alexandria, New Orleans and Lafayette gasoline tax includes 5c state tax and 1c parish tax. New Orleans kerosine price includes 1c parish tax in addition to 1c state tax.

†Kerosine prices in Louisiana include 1c state tax.

MAGNOLIA PETROLEUM

Maximum Mileage Gasoline

	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Muskogee, Okla.	7	4	11	13	7
Oklahoma City.	9	4	13	15	7
Tulsa, Okla.	9	4	13	15	8
Fort Smith, Ark.	12.5	†4	16.5	16.5	11
Little Rock, Ark.	11.5	6	17.5	17.5	11
Texarkana, Ark.	12	*4	16	16	9
Dallas, Tex.	11	4	15	16	9
El Paso, Tex.	8	4	12	14	11
Fort Worth, Tex.	11	4	15	16	8
Houston, Tex.	8	4	12	15	9
San Antonio, Tex.	10	4	14	16	8

Blue Gasoline

Muskogee, Okla.	9	4	13	13	7
Oklahoma City.	6	4	10	10	7
Tulsa, Okla.	8	4	12	12	8
Fort Smith, Ark.	9	4	13	13	11
Little Rock, Ark.	6	6	12	12	11
Texarkana, Ark.	6	4	10	10	9
Dallas, Tex.	6	4	10	10	9
El Paso, Tex.	5	4	9	9	11
Fort Worth, Tex.	6	4	10	10	8
Houston, Tex.	6	4	10	10	9
San Antonio, Tex.	6	4	10	10	8

Dealer discounts: on Maximum Mileage gasoline, 2.5c off t.w. price to dealers, thru Arkansas. On Blue gasoline, 1c per gal. off t.w. price to dealers thru territory. Fort Smith and Little Rock kerosine prices are subject to 2c discount off t.w. price.

*In Texarkana, 4c Texas tax applies; out side Texarkana, 6c Arkansas tax applies.

†In Fort Smith, 4c Oklahoma tax applies; outside Fort Smith, 6c Arkansas tax applies.

CONTINENTAL OIL

Conoco Gasoline

Denver, Colo.	10	4	14	17	12.5
Pueblo, Colo.	10	4	14	17	12
Grand Junc., Colo.	14	4	18	21	14.5
Casper, Wyo.	11	4	15	18	10
Cheyenne, Wyo.	9	4	13	16	11.5
Butte, Mont.	12	5	17	20	16
Helena, Mont.	15	5	20	23	16
Salt Lake City, Utah.	13.5	4	17.5	20.5	16
Boise, Ida.	16	5	21	24	18
Twin Falls, Ida.	16	5	*21	22	18
Albuquerque, N. M.	12	5	17	20	14

*Less 2c dealers' discount.

S. O. CALIFORNIA

Standard Gasoline

					Kerosine
	T.W.	Tax	Total T.W.	S.S.	T.W.
San Francisco, Cal.	9.5	3	12.5	16.5	12.5
Los Angeles, Cal.	9	3	12	16	12.5
Fresno, Cal.	9.5	3	12.5	16.5	14
Phoenix, Ariz.	9.5	5	14.5	17	†20.5
Reno, Nev.	12	4	16	20	15.5
Portland, Ore.	10	4	14	18	13.5
Seattle, Wash.	10	5	15	19	13.5
Spokane, Wash.	13.5	5	18.5	22.5	18
Tacoma, Wash.	10	5	15	19	13.5

†Includes 5c state tax.

CANADA

(Per Imperial Gallon, which is 1.2 U. S. Gallons)

"Regular Gasoline"	T.W.	Tax	Total T.W.	S.S.	Kerosine T.W.
Toronto, Ont.	17.5	5	22.5	26	17.5
Ottawa, Ont.	18.5	5	23.5	27	18 5
North Bay, Ont.	21.5	5	26.5	32	21.5
Fort William, Ont.	19.5	5	24.5	28	17
Border Cities, including Windsor, Ont.	17.5	5	22.5	26	16.5
Winnipeg, Man.	19.5	5	24.5	28	16.5
Regina, Sask.	23.5	5	28.5	32.5	20.5
Edmonton, Alta.	24.5	5	29.5	33	21.5
Calgary, Alta.	21	5	26	29.5	18
Vancouver, B. C.	21	5	26	28	22
Montreal, Que.	17.5	6	23.5	27	17.5
Quebec City, Que	20.5	6	26.5	30	20.5
Three Rivers, Que.	20.5	6	26.5	30	20.5
St. John, N. B.	20	5	25	29	22
Moncton, N. B.	20	5	25	29	22
Halifax, N. S.	20	5	25	29	22
Charlottetown, P. E. I.	20	5	25	29	22
Third Grade Gasoline					**Oil**
Toronto, Ont.	16.5	5	21.5	23.5	17.5

Aviation Gasoline Prices

Following are tank wagon prices of aviation gasoline in principal marketing territories showing state and municipal taxes:

S. O. NEW JERSEY

Prices in Effect March 21, 1932

Stanavo Aviation Gasoline	T.W.	Tax	Total T.W.
Newark, N. J.	16	..	16
Baltimore, Md.	16	4	20
Washington, D. C.	16.3	2	18.3

COLONIAL BEACON OIL CO.

Stanavo Aviation Gasoline			
New York City	16	2	18
Boston, Mass.	18	3	21

S. O. PENNSYLVANIA

Stanavo Aviation Gasoline			
Philadelphia, Pa.	15	3	18
Pittsburgh, Pa.	16	3	19
Altoona, Pa.	16	3	19
Harrisburg, Pa.	15	3	18

S. O. OHIO

Sohio Aviation Gasoline			
Thru Ohio.	14	4	18

Discounts: to airports, 1 to 4c, based on quantity.

S. O. INDIANA

Stanavo Aviation Gasoline			
Chicago	15	3	18
Indianapolis, Ind.	15.4	4	19.4
Detroit, Mich.	15.8	3	18.8
Milwaukee, Wis.	15.2	4	19.2
Minneapolis, Minn.	16.3	3	19.3
St. Louis, Mo.	14.4	2	16.4
Kansas City, Mo.	15	*3	18
Fargo, N. D.	18	3	21
Huron, S. D.	16.4	4	20.4
Wichita, Kan.	13.9	3	16.9

*Includes 1c city tax.

S. O. LOUISIANA

Stanavo Aviation Gasoline			
New Orleans, La.	18	6	24
Nashville, Tenn.	20	7	27
Memphis, Tenn.	19	7	26

Dealer and commercial consumer discount: 2c off posted retail t.w.

CONTINENTAL OIL CO.

Denver, Colo.	13	4	17
Cheyenne, Wyo.	15	4	19
Helena, Mont.	18	5	23
Salt Lake City, Utah.	16.5	4	20.5
Albuquerque, N. M.	15	5	20
Boise, Ida.	19	5	24

S. O. CALIFORNIA

Stanavo Aviation Gasoline			
Phoenix, Ariz.	12.5	5	17.5
Los Angeles, Cal.	12	3	15
San Francisco, Cal.	12.5	3	15.5
Reno, Nev.	15	4	19
Portland, Ore.	13	4	17
Seattle, Wash.	13	5	18
Spokane, Wash.	16.5	5	21.5

Note: 4c added to customers taking delivery direct into planes.

Naphtha Prices

	Oleum Spirits	V.M.&P. Naphtha	Cleaner Napht ha
Chicago	11.7	13.7	15.2
Detroit	14.4	15.9	16.7
Kansas City	†13	†14.5	†15.3
Milwaukee	13.5	*19	*19.8
Minneapolis	**17.8	**19.3	**20.1
St. Louis	12.6	14.1	14.9
New York	...	12	17
Boston	...	17	17

*Includes 4c state tax. †Includes 1c city tax.
**Includes 3c state tax.

Petroleum Spirits (Solvent)

Tank Cars (F.o.b. refinery or seaboard terminal)	
New York Harbor	9.00
Philadelphia district	9.00
Providence	9.50
Tank Wagon or Steel Barrels	
New York City	12
Syracuse	16
Rochester	14
Buffalo (net price)	14
Providence	17
Boston	17
Bridgeport	15
Newark	13
Philadelphia	14
Lancaster	17
Altoona	17
Baltimore	15

Note: 2c off above t.w. prices to large buyers in some instances.

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"VAL U." Ser. No. 313,109. Deep Rock Oil Corporation, Chicago, Ill. For gasoline.

"CHEVROLENE." Ser. No. 321,038. Southern Lubricating Company, Ponca City, Okla. For lubricating oil.

"WADHAMS" "370" W, within a circle. Ser. No. 322,195. Wadhams Oil Company, Milwaukee, Wis. For gasoline.

"W," and picture of an oil can, etc. within a circle. Ser. No. 322,196. Wadhams Oil Company, Milwaukee, Wis. For petroleum products—namely, motor lubricating oil, gasoline, and lubricating grease.

"PENZ-ELETE." Ser. No. 322,266. People's Oil Company, Denver, Colo. For gasoline, lubricating oils and greases.

"PENN PEPPER." Ser. No. 322,541. Ashland Refining Company, Ashland, Ky. For lubricating oils.

"SENIOR." Ser. No. 322,606. Standard Oil Company of New Jersey, Wilmington, Del. For refined, semirefined and unrefined oils made from petroleum both with and without admixture of animal, vegetable or mineral substances for illuminating, burning, power, fuel, and lubricating purposes, and lubricating greases.

"EL CAMINO," and picture within a circle. Ser. No. 312,879. El Camino Oil Company, Ltd., Los Angeles, Calif. For petroleum and hydro-carbon products consisting of gasoline, kerosine, commercial distillate for fuel purposes, motor fuel oil, lubricating grease, and lubricating oil.

"METRO-MATIC." Ser. No. 322,076. Alemite Corporation, Chicago, Ill. For lubricating systems, comprising lubricant pumps, lubricant apportioning devices and swivels.

"SIGNAL PURR-PULL." Ser. No. 313,392. Signal Oil & Gas Company, Los Angeles, Calif. For gasoline.

"ANTIDOLORIN." Ser. No. 321,067. Franco-American Chemical Works, Inc., Carlstadt, N. J. For ethyl chloride.

"PURSUIT." Ser. No. 322,890. Phillips Petroleum Co., Bartlesville, Okla. For refined, semi-refined, and unrefined oils and greases made from petroleum, etc.

"STERLING," in a circle. Ser. No. 308,793. Sterling Oil Company, Emlenton, Pa. For illuminating oils, lubricating oils, lubricating greases, gasoline, kerosine, and crude petroleum.

Crude Oil Prices (in Effect March 21, 1932)

Crude prices for the whole year in OIL PRICE HANDBOOK published annually
(Prices are per barrel at the well; A.P.I. gravity).

EASTERN FIELDS

(Posted by Joseph Seep Purchasing Agency)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$1.55

(Effective Dec. 16, 1931)

Penna. Grade Oil in Eureka Pipe Lines (West Virginia)..... 1.50

(Effective Feb. 25, 1932)

Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....†1.35

(Effective March 12, 1932)

Corning Oil in Buckeye Pipe Lines (Ohio).... 0.85

(Effective Nov. 7, 1931)

†For Macksburg oil run previous to March 1, 1932, $1.25.

Posted by Other Companies

Tide Water Pipe Co., Ltd.:
Bradford-Alleghany district (Penna. and N. Y.).....$1.82

(Effective March 12, 1932)

*The Pennzoil Co.:
Penna. Grade Oil in National Transit Lines*$1.77

(Effective March 14, 1932)

Ashland Refining Co.:
Somerset Oil in Ashland Lines (Kentucky)..$0.65

(Effective Feb. 9, 1932)

Stoll Oil Refining Co.:
Stoll Pipe Line Oil (Kentucky).....$0.60

(Effective Jan. 18, 1932)

*The Pennzoil Co. posts $1.77 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other districts range down to $1.72 per bbl. at wells.

MICHIGAN

(Posted by Pure Oil Co.)

Midland, Midland County (Oct. 9, 1931)...$0.55

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

Effective Nov. 3, 1931

Wooster	$1.15	Princeton	$0.95
Lima	1.00	Illinois	0.95
Indiana	0.60	West Kentucky	0.90

CANADIAN CRUDE

Posted by Imperial Oil Refineries, Ltd.

Effective Nov. 3, 1931

Petrolia, Ont.....$1.90
Oil Springs, Ont.....$1.97

Effective Aug. 25, 1931

Turner Valley, Alta.:

40-44.9	$1.50	50 and above	$2.65
45-49.9	$2.08		

OKLAHOMA, KANSAS and NORTH TEXAS

Prices of Stanolind Crude Oil Purchasing Co.
(In Oklahoma, Kansas, North and North Central Texas)

(Effective Nov. 2, 1931)

Below 29	$0.61	35-35.9	$0.75
29-29.9	0.63	36-36.9	0.77
30-30.9	0.65	37-37.9	0.79
31-31.9	0.67	38-38.9	0.81
32-32.9	0.69	39-39.9	0.83
33-33.9	0.71	40 and above	0.85
34-34.9	0.73		

Effective Nov. 2, 1931, above prices were met by these companies: Humble, The Texas Co., Continental Oil, Barnsdall and Phillips Petroleum; on Nov. 3 by Carter Oil, Sinclair, Pure Oil and Gulf.

Humble's prices affect Ranger, North Texas, Mexia, Powell, Boggy Creek, Wortham, Currie and Moran, Tex.

East Texas

Discontinued by Humble, June 3.

Magnolia posts $0.83 effective Nov. 2, 1931.

Magnolia Petroleum Co.
(In Oklahoma, North, North Central and Central Texas)

(Including in North and North Central Texas: Burkburnett, Archer, Stephens, Henrietta, Electra, Comanche and Olden; in Central Texas: Mexia, Wortham, Corsicana Light and Panola county).

Effective Jan. 8, 1932

Below 28	$0.52	28-28.9	$0.61

Rest of schedule same as Stanolind, which see above.

Lytton Springs, Tex.....$0.79

PANHANDLE TEXAS
Humble Oil & Refining Co.

Effective Nov. 2, 1931

Hutchinson-Carson Counties		Gray County	
Below 35	$0.56		$0.61
35-35.9	.58		.63
36-36.9	.60		.65
37-37.9	.62		.67
38-38.9	.64		.69
39-39.9	.66		.71
40 and above	.68		.73

Above prices met by The Texas Co. on Nov. 2 in Hutchinson, Carson and Gray counties.

Met by Magnolia in all three counties, Jan. 8, 1932.

WEST TEXAS and NEW MEXICO
Humble Oil & Refining Co.

Effective Nov. 2, 1931

Pecos, Winkler, Crane, Upton, Crockett, Ector, Howard and Glasscock Counties, Tex., and Lea county, N. Mex.....$0.50

Nov. 2, 1931, The Texas Co. same prices in Crane, Upton, Winkler and Lea counties as Humble.

SOUTH and SOUTHWEST TEXAS

(Posted by Humble Oil & Refining Co.)

Effective Nov. 2, 1931

Mirando	$0.75
Salt Flat	0.60
Darst Creek	0.60
Pettus, Bee County	0.85

(Posted by The Texas Co.)

Effective Nov. 2, 1931

Markham.....$0.67

NORTH LOUISIANA—ARKANSAS FIELDS

Prices of Standard Oil Co. of Louisiana

Caddo, Homer, Haynesville, Bull Bayou, El Dorado Crichton, De Soto, Sabine, Sarepta and Carterville.

Effective Nov. 4, 1931

Below 25	$0.53	33-33.9	.71
25-25.9	.55	34-34.9	.73
26-26.9	.57	35-35.9	.75
27-27.9	.59	36-36.9	.77
28-28.9	.61	37-37.9	.79
29-29.9	.63	38-38.9	.81
30-30.9	.65	39-39.9	.83
31-31.9	.67	40 and above	.85
32-32.9	.69		

Smackover.....$0.55
*Urania, La.....0.55
†Stephens, Ark.:
Below 29.....$0.51
29 and above.....0.54

*Urania posted by Louisiana Oil Refining Corp.

†Stephens posted by Atlantic Oil Producing Co. and Louisiana Oil Refg. Corp.

Above gravity schedule met by Magnolia, Jan. 8, 1932, in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in El Dorado light and Rainbow, Ark.

*GULF COASTAL

Posted by Humble Oil & Refining Co

Effective Nov. 2, 1931

Below 25	$0.70	33-33.9	$0.79
25-25.9	0.71	34-34.9	.80
26-26.9	.72	35-35.9	.81
27-27.9	.73	36-36.9	.82
28-28.9	.74	37-37.9	.83
29-29.9	.75	38-38.9	.84
30-30.9	.76	39-39.9	.85
31-31.9	.77	40 and above	.86
32-32.9	.78		

Refugio heavy.....$0.75

*Includes these fields: Barbers Hill, Goose Creek, Hull, Humble, Liberty, Moss Bluff, Mykawa, Orange, Pierce Junction, Raccoon Bend, Refugio light, Sour Lake, Spindletop, Sugarland and West Columbia.

The Texas Co. met above Gulf Coastal schedule Nov. 2.

Census Bureau Counts Up Stations

WASHINGTON—A survey of retail activity in all towns in this country of 10,000 or more inhabitants, including the number of filling stations and sales at these stations, has been published by the Census Bureau in a pamphlet entitled "Retail Distribution in the United States by Counties and Cities."

Oil's Corrosion Bill $125,000,000

CHICAGO, March 4.—Prevention or inhibition of corrosion in metals is perhaps the most important problem before industry in this country today, and is particularly pressing in the oil industry, according to Dr. Gustav Egloff, of the Universal Oil Products Co., Chicago. He will report on methods of protection at the coming convention of the American Chemical Society in New Orleans March 28 to April 1.

Loss traceable to corrosion of metals is more than $1,000,000,000 a year in the United States, he said, representing over one per cent of the value of the nation's annual business. Dr. Egloff placed the corrosion bill of the petroleum industry for 1931 at $125,000,000, which amounts to a levy of one cent for every gallon of gasoline consumed.

Airplanes Fly 10,000,000 More Miles

WASHINGTON—Air lines of the United States carried 457,340 passengers over 41,416,688 miles in 1931, as compared with 374,935 passengers in 1930 carried over 31,712,541 miles, according to Col. Clarence M. Young, assistant secretary of commerce for aeronautics.

Express carried by air lines in 1931 totaled 787,353 pounds, a 120 per cent gain over express carried the previous year.

HARTLAND, Me.—A. R. Burton & Son, who operate three service stations and supply 16 others, are building a super service station and bulk plant at Newport, Me. The company has a bulk plant at Hartland out of which it delivers with four trucks.

LEBANON, Tenn.—Gulf Refining Co. has leased a service station from S. S. Bone.

CALDWELL, Ida.—David A. Isom, who buys petroleum products in bulk, says that the farmer business in this part of the country has fallen off considerably and that tractors are less used, with the farmers going back to horses.

NEW PATENTS

Prepared by R. E. Burnham, patent and trade-mark attorney, 1343 H Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 20c each. State number of patent and name of inventor when ordering.

February 9, 1932

PRODUCTION

Deep-well turbine pump having separate means for carrying hydrostatic loads—John A. Wintroath, Los Angeles, Calif. Filed July 26, 1926. No. 1,844,829.

Deep-well turbine pump having means for locating impellers—John A. Wintroath, Los Angeles, Calif. Filed Sept. 7, 1926. No. 1,844,830.

Deep-well turbine pump having means for removing stretch from pumpshafts and for lubricating bottom bearings—John A. Wintroath, Los Angeles, Calif. Filed Sept. 7, 1926. No. 1,844,831.

Process for preventing accumulation of solid matter from oil wells, pipe lines, and flow lines—Melvin De Groote, St. Louis, Mo., assignor to Tretolite Co., Webster Grooves, Mo. Filed Jan. 26, 1927. No. 1,844,883.

MISCELLANEOUS

Stabilization of tetra alkyl lead and composition containing the same—William S. Calcott, Penns Grove, and Alfred E. Parmelee, Carneys Point, N. J., assignors to E. I. du Pont de Nemours & Co., Wilmington, Del. Filed Jan. 10, 1931. No. 1,843,942.

Process of producing an anti-knock compound—Harry K. Ihrig, Berkeley, Calif. Filed June 15, 1927. No. 1,844,362.

Bucket-box for vehicle-tanks — Augustine Davis, Jr., Cincinnati, Ohio. Filed June 19, 1928. No. 1,844,868.

February 16, 1932

REFINING

Method and apparatus for coking tars and hydrocarbon oil residues—Gentry Cash, Whiting, Ind., assignor to Standard Oil Co. of Indiana. Filed May 12, 1928. No. 1,844,944.

Production of valuable hydrocarbons of low boiling point—Rudolf Wietzel, Ludwigshafen-on-the-Rhine, and Conrad Pfaundler, Oppau, Germany, assignors to I. G. Farbenindustrie. Filed Mar. 21, 1928. No. 1,844,998.

Distillation system—Henry I. Lea, Los Angeles, Calif. Filed May 5, 1928. No. 1,845,159.

Liquid and other hydrocarbons and derivatives thereof by the destructive hydrogenation of carbonaceous materials—Mathias Pier, Heidelberg, and Walter Simon, Ludwigshafen-on-the-Rhine, Germany, assignors to Standard-I. G. Co., Linden, N. J. Filed March 31, 1928. No. 1,845,439.

Art of cracking hydrocarbons—Harry L. Pelzer, Houston, Tex., assignor to Sinclair Refining Co., New York, N. Y. Filed April 4, 1930. No. 1,845,554.

Liquid and other hydrocarbons and derivatives thereof by the destructive hydrogenation of carbonaceous materials—Mathias Pier, Heidelberg, and Walter Simon, Ludwigshafen-on-the-Rhine, Germany, assignors to Standard-I. G. Co., Linden, N. J. Filed March 31, 1928. No. 1,845,555.

Process for treating petroleum oils—Guy C. Rowden, Watson, Calif. Filed Apr. 15, 1929. No. 1,845,723.

Apparatus for heating and cracking oil—John C. Black, Los Angeles, and Earl W. Gard, Palos Verdes Estates, Calif. Filed Nov. 16, 1926. No. 1,845,739.

Method of cracking petroleum hydrocarbons—Walter M. Cross, Kansas City, Mo., assignor to Gasoline Products Co., Wilmington, Del. Filed June 22, 1928. No. 1,845,959.

PRODUCTION

Well-testing apparatus — Samuel Rohe and Shelah V. Pugh, Mirando City, Tex. Filed Jan. 3, 1930. No. 1,844,979.

Traveling valve—Robert J. Schuyler, Duncan, Okla. Filed Oct. 28, 1929. No. 1,844,985.

Drill-rod—Albano Schmalz, Chicago, Ill. Filed Dec. 12, 1927. No. 1,845,061.

Gas-lift device for pumping wells—Ford W. Harris, Los Angeles, Calif. Filed July 31, 1928. No. 1,845,149.

Fish-tail bit—Henry McHuley, Long Beach, Calif. Filed Aug. 31, 1927. No. 1,845,168.

Hydraulic pump for use in the bottom of wells—John Penrod, Okmulgee, Okla. Filed May 13, 1926. No. 1,845,179.

Head flowing fluid lift—John Penrod, Okmulgee, Okla. Filed May 16, 1927. No. 1,845,180.

Head flowing fluid lift—John Penrod, Okmulgee, Okla. Filed May 26, 1927. No. 1,845,181.

Fluid lift for wells—John Penrod, Okmulgee, Okla. Filed Feb. 9, 1928. No. 1,845,182.

Packer for casing-heads—Lawrence F. Baash, Los Angeles, and Erwin Burns and George B. Garrard, Long Beach, Calif. Filed June 23, 1930. No. 1,845,219.

Core-drilling apparatus—Edwin C. Brown, Los Angeles, Calif. Filed Dec. 13, 1930. No. 1,845,230.

Packer and setting tool—Walter L. Church and Jeddy D. Nixon, Houston, Tex. Filed Oct. 27, 1928. No. 1,845,238.

Well-screen—Fred I. Getty, Jennings, La. Filed July 24, 1929. No. 1,845,265.

Well-casing head—Erwin Burns, Los Angeles, Calif., assignor to Baash-Ross Tool Co., same place. Filed July 10, 1930. No. 1,845,396.

Deep-well pump—Harry K. V. Tompkins, Houston, Tex., assignor to Gulf Production Co., same place. Filed Dec. 8, 1930. No. 1,845,453.

Apparatus for lifting liquid from wells—Otto V. Martin, Sand Springs, Okla., assignor to Texas Co., New York, N. Y. Filed Aug. 14, 1930. No. 1,845,675.

Oil-saver—Gordon Saunders, Whittier, Calif. Filed May 4, 1931. No. 1,845,683.

Bailer—LeRoy F. Kime and Fred F. Uhl, Bartlesville, Okla. Filed Aug. 13, 1928. No. 1,845,799.

Oil-well device—Thomas G. Schoolcraft, Okotoks, Alberta, Canada. Filed Jan. 19, 1931. No. 1,845,889.

Pneumatic swab—Harold W. Fletcher, Houston, Tex., assignor to Hughes Tool Co., same place. Filed Oct. 27, 1924. No. 1,846,000.

Apparatus for pumping liquid—Harold W. Fletcher, Houston, Tex., assignor to Hughes Tool Co., same place. Filed Nov. 9, 1928. No. 1,846,001.

Means and method for raising liquid from wells—Harold W. Fletcher, Houston, Tex., assignor to Hughes Tool Co., same place. Filed Dec. 15, 1928. No. 1,846,002.

February 23, 1932

REFINING

Process for recovery of natural gasoline—Floyd L. Kallam, South Gate, Calif. Filed Aug. 3, 1927. No. 1,846,206.

Method of producing carbureted gas and hydrocarbon motor fuel—Charles J. Ramsburg, Edgeworth, Pa., assignor to Koppers Co. Filed Feb. 12, 1927. No. 1,846,403.

Production of cracked hydrocarbons—Thomas T. Gray, Elizabeth, N. J., assignor to Gray Processes Corp., Newark, N. J. Filed Mar. 3, 1926. No. 1,846,803.

PRODUCTION

Well-pump — Ralph I. Pendleton, Sunnyvale, Calif. Filed Mar. 30, 1931. No. 1,846,435.

Expansion-joint for well-liners—Fred W. Baurmann, Cartagena, Columbia. Filed Apr. 29, 1929. No. 1,846,539.

Oil-saver—Benjamin P. & Ayers M. Hoffman, Tulsa, Okla., assignors to Pierce Development Co., same place. Filed May 3, 1929. No. 1,846,967.

Valve for wells—Herman Kratzer, Kanopolis, Kans. Filed Aug. 12, 1931. No. 1,847,011.

MISCELLANEOUS

Breather-type roof for storage-tanks for gas and volatile liquids—John H. Wiggins, Tulsa, Okla. Filed Apr. 3, 1929. No. 1,846,506.

Tank-car construction — Julius C. Sullivan, Pittsburgh, Pa., assignor to Gulf Refining Co., same place. Filed Apr. 6, 1931. No. 1,846,768.

Receptacle-evacuating apparatus — Charles J. Knapp, Detroit, Mich., assignor to Standard Oil Co. of Indiana. Filed Oct. 25, 1926. No. 1,846,877.

Liquid-dispensing apparatus — Walter H. Parker, Rochester, Pa., assignor to Wayne Pump Co., Baltimore, Md. Filed Oct. 15, 1925. No. 1,846,899.

March 1, 1932

REFINING

Method of treating hydrocarbons—Walter M. Cross, Kansas City, Mo., assignor to Gasoline Products Co., Wilmington, Del. Filed June 1, 1915. No. 1,847,082.

Prevention of the formation of carbon in operations carried out with hydrocarbons at an elevated temperature—Alwin Mittasch, Mannheim, Rudolf Wietzel, Ludwigshafen-on-the-Rhine, and Conrad Pfaundler, Oppau, Germany, assignors to I. G. Farbenindustrie. Filed Mar. 11, 1927. No. 1,847,095.

Process of treating hydrocarbons—Frederick E. Frey, Jesse A. Guyer, and George G. Oberfell, Bartlesville, Okla., assignors to Phillips Petroleum Co., same place. Filed May 21, 1929. No. 1,847,238.

Process of treating hydrocarbons—Frederick E. Frey and Jesse A. Guyer, Bartlesville, Okla., assignors to Phillips Petroleum Co., same place. Filed June 3, 1929. No. 1,847,239.

Process of polymerizing gaseous hydrocarbons into volatile liquids—Frederick E. Frey, Bartlesville, Okla., assignor to Phillips Petroleum Co., same place. Filed June 6, 1930. No. 1,847,240.

Process for the pyrolytic conversion of normally gaseous aliphatic hydrocarbons—Lon S. Gregory, Tulsa, Okla., assignor to Phillips Petroleum Co., Bartlesville, Okla. Filed May 28, 1928. No. 1,847,241.

Process for cracking gaseous hydrocarbons—Jesse A. Guyer and Frederick E. Frey, Bartlesville, Okla., assignors to Phillips Petroleum Co., same place. Filed May 24, 1928. No. 1,847,242.

Process for the pyrolytic conversion of normally gaseous aliphatic hydrocarbons—George G. Oberfell and Jesse A. Guyer, Bartlesville, Okla., assignors to Phillips Petroleum Co., same place. Filed May 24, 1928. No. 1,847,257.

Crude Oil Prices (in Effect March 21, 1932)

(Prices are per barrel at the well; A.P.I. Gravity)

(Crude Oil Prices for the whole year in OIL PRICE HANDBOOK published annually)

ROCKY MOUNTAIN FIELDS

(Posted by Midwest Refining Co.)

Effective Nov. 2, 1931

Salt Creek, Wyo.:

Below 29°	$0.61	32-32.9	$0.69
29-29.9	0.63	33-33.9	0.71
30-30.9	0.65	34-34.9	0.73
31-31.9	0.67	35-35.9	0.75
36-36.9	$0.77	39-39.9	$0.83
37-37.9	0.79	40 and above	0.85
38-38.9	0.81		

Effective Nov. 3, 1931

Cat Creek, Mont.	$1.05
Hogback, N. Mex.	0.80
Hobbs, N. Mex. (Effective Nov. 2, 1931)	0.50

(Posted by Ohio Oil Co.)

Effective Nov. 3, 1931

Elk Basin, Wyo.	$1.05
Grass Creek Light	1.05
Big Muddy	0.83
Lance Creek	1.05
Rock Creek	0.85
Sunburst, Mont.	1.00

CALIFORNIA CRUDE

††Standard Oil Co. of California
Effective June 19, 1931

Posted by Union Oil Co. of California June 20, 1931

Gravity	Signal Hill *Seal Beach *Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canon	Elwood Terrace	Torrance	Richfield	†Whittier †La Habra Montebello	Coyote Hills	Santa Fe Springs	Newhall McKittrick Kern River	Midway Sunset Elk Hills Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge	Athens Rosecrans Dominguez	Santa Paula	Orcutt	‡Ventura Avenue
14-19.9	$0.65	$0.65	$0.65	$0.65	$0.65		$0.65	$0.65	$0.65	$0.65		$0.55	$0.55	$0.55	$0.55	$0.55		$0.65	$0.55	
20-20.9	.65	.65	.66	.65	.66		.65	.65	.65			.55	.55	.55	.55			.65	.56	
21-21.9	.65	.65	.68	.66	.67		.65	.66	.65	.65			.55	.57	.55	.55		.65	.57	
22-22.9	.65	.66	.70	.67	.68		.66	.68	.65	.65			.56	.59	.55	.55		.65	.59	.58
23-23.9	.67	.68	.72	.68	.70	F.o.b.	.67	.70	.65	.66			.58	.60	.55	.55		.65	.61	.60
24-24.9	.69	.70	.74	.69	.72	Ship	.68	.72	.65	.67	$0.65		.61	.62	.55	.55	$0.69	.66	.63	.62
25-25.9	.71	.72	.76	.70	.74		.70	.74	.65	.69	.65		.64	.64	.57	.55	.71	.68	.65	.64
26-26.9	.73	.74			.76					.71	.65		.66	.66			.73	.70	.67	.66
27-27.9	.75	.76			.78					.73	.68		.68	.67			.75	.72		.68
28-28.9	.77			Subject to field gathering charge of 5c per barrel.	.80					.75	.71		.71	.69			.77	.74		.70
29-29.9	.79									.77	.73		.74	.71			.79	.76		.72
30-30.9	.81									.79	.75		.76	.72			.81	.78		.74
31-31.9											.78						.83			
32-32.9											.80						.85			
33-33.9						$0.79					.83						.87			
34-34.9						.81					.86						.89			
35-35.9						.84					.87									
36-36.9						.87														

*Seal Beach and Alamitos Heights prices end with $0.75 for crude 27 and above.

†Whittier and La Habra crude ends with 22-22.9 gravity.

††Postings on Kettleman Hills, Ventura Avenue, Athens-Rosecrans and Dominguez discontinued by Standard. Kettleman Hills, 30 and above, posted at 66 cents by Associated Oil Co. and General Petroleum Co., June 19, 1931.

‡Posted by Associated Oil Co., June 20, 1931.

REFINERS' and COMPOUNDERS' SUPPLIES

Following are average market prices for materials used by refiners and compounders effective on the date shown.

Refiners' Supplies

	March 21	March 14
Soda Ash Light 58% bags, cwt.	$1.15-1.38	$1.15-1.38
Silicate of Soda 60 deg. drums, cwt.	$1.75-1.90	$1.75-1.90
Silicate of Soda 40 deg. tank cars, cwt.	$0.70	$0.70
Silicate of Soda 40 deg. drums, cwt.	$1.00	$1.00
Sal Soda wks.	$0.90-1.20	$0.90-1.20
Caustic Soda 76% solid, cwt.	$2.50	$2.50
Sulfuric Acid 60 deg. tank cars, f. o. b. shipping point per ton	$11.00-12.50	$11.00-12.50
Sulfur, flowers of, cwt.	$3.10-4.05	$3.10-4.05
Liquid Chlorine, tank cars, wks, lb.	1.75	1.75

Compounder's Supplies

	March 21	March 14
Vegetable Oils		
Linseed carloads, spot, lb.	6.60	6.80
Tanks, spot	6.00	6.20
Soya Bean, Tank, coast, lb.	5.00-5.50	5.00-5.50
Oleic Acid		
Distilled, tanks, lb.	5.75	5.75
Distilled, bbls, lb	7.125-7.375	7.125-7.375
Saponified, tanks, lb.	6.00	6.00
Saponified, bbls, lb.	6.75-7.00	6.75-7.00
Lard Oils		
Prime Winter Strained, lb.	9.75	9.75
Extra Winter Strained, lb.	7.00	7.00
Extra, lb.	6.75	6.75
Extra No. 1, lb.	6.25	6.25
No. 1, lb.	6.00	6.00
No. 2, lb.	5.75	5.75
Tallow oil, lb.	7.00	7.00
Neatsfood Oil		
Pure, bbls, lb.	8.75	8.75
Extra, bbls, lb.	6.50	6.50
No. 1. bbls, lb.	6.25	6.25
Cold Pressed, lb.	13.25	13.25
Fish Oils		
Menhaden Oil		
Light Pressed, gal.	33–34	33–34
Light Pressed, tank cars, N. Y., gal.	27–28	27–28
Yellow bleached, gal.	36–37	36–37
Whale, extra winter bleached, gal.	58–60	58–60
Naval Stores		
Steam distilled turpentine, N. Y., gal.	46	44
Steam, distilled turpentine, Savannah, gal.	43	41
Gum turpentine, N. Y., gal.	50	50
Gum turpentine, f.o.b. cars Savannah, gal.	44	44
Wood Rosin, N. Y., bbl.	$4.78	$4.78
Wood Rosin F, Savn'h, bbl.	$4.58	$4.58
Gum Rosin B, N. Y., bbl.	$3.25	$3.50
Gum Rosin B, f. o. b. cars Savannah, bbl.	$2.50	$2.75
Rosin oil, pure, gal.	47–49	47–49
Rosin, oil, compounded, gal.	41–43	41–43
Pine Tar		
Kiln burnt, bbl.	$10.00-11.00	$10.00-11.00
Retort, bbl.	$11.00-12.00	$11.00-12.00
Alcohol		
Denatured Formula 5, in tanks, per gal.	24	24

Oil Stocks and Finances

N. J. Standard Denies Gas Line Manipulation

NEW YORK, March 19.—General denial has been entered by Standard Oil Co. of New Jersey and Christy Payne, a director of that company, to the charges made in a suit in federal district court by the Missouri-Kansas Pipe Line Co. for treble damages amounting to approximately $75,000,000.

Besides the New Jersey company and Mr. Payne, defendants are Henry L. Doherty as an individual, Henry L. Doherty & Co., North American Light & Power Co. and Louis E. Fisher of Illinois.

It was charged by the Missouri-Kansas company that the defendants conspired to prevent the construction of a natural gas pipeline to within 30 miles of Chicago by engaging in heavy short selling of shares of the Panhandle Eastern Pipe Line Co., controlled by the Missouri-Kansas company, to such an extent that the prices of the stock were greatly lowered.

It was also charged that in order to get sufficient funds to complete the pipeline the complainant was obliged to sell a half interest in the Panhandle Eastern line at a great loss. The short selling, it was alleged in the bill of complaint, took place between June 14 and 16, 1930, at which time the defendants did not own any of the stock sold, were unprepared to make delivery of shares sold, and did not intend to make such delivery.

Cosden Drafts Plan To Reorganize

NEW YORK, March 19.—J. S. Cosden heads a committee which has worked out a plan for the reorganization of the Cosden Oil Co. which has been in receivership since November, 1930.

Holders of secured obligations, debts and claims, will receive under this plan first mortgage 6 per cent serial bonds for the principal amount of their claims with interest to Nov. 9, 1930. The bonds will mature in blocks of 25 per cent each in two, three, four and five years.

Holders of unsecured obligations will receive general lien 6 per cent five year bonds on the principal amount of their claims with interest to Nov. 9, 1930.

Holders of preferred stock will be asked to waive accumulated dividends and take new $100 par 7 per cent preferred stock on a share for share basis. Holders of common stock will receive share for share new no par common stock in the reorganized company.

Barnsdall Holders Favor Change

NEW YORK, March 19.—More than half the outstanding Barnsdall Corp. stock has sent in proxies favoring the reduction in the par value of Barnsdall stock to $5 from $25 and combining the A and B stock into one class, and also to write down the company's oil and gas leases to $1. A special meeting of stockholders to vote on the changes is to be held March 22.

Standard of Ohio Nets $2.38 on $25 Common

CLEVELAND, March 21.—Net profits of the Standard Oil Co. of Ohio in 1931, after all charges, were $2,383,765, compared with $3,724,325 for 1930, according to the consolidated financial statement mailed to stockholders March 18 in advance of the complete annual report.

The 1931 profits were equal to approximately four times the dividend requirements on the 5 per cent preferred stock of $600,000 per year. After deduction of preferred dividends profits averaged $2.38 a share on the 752,467 shares of $25 per common stock outstanding Dec. 31, 1931, as against $5.20 a share on the 560,720 shares of common stock outstanding a year before. Dividends on the common are at the annual rate of $2.50 a share.

In addition to the foregoing net profits, the company's share, through common stock holdings, of the undistributed net profits for 1931 of other companies not included in the consolidated financial statement was equal to approximately $1 a share on Standard of Ohio common stock.

The balance sheet as of Dec. 31, 1931, shows current assets of $15,759,456 against current liabilities of $4,376,180, leaving net working capital of $11,383,276. Cash and government bonds amounted to approximately $4,300,000.

Value of plant, equipment and real estate increased from $48,983,512 on Dec. 31, 1930, to $58,082,252 at the end of 1931. The depreciation reserve at the end of 1931 amounted to $17,143,655 as compared with $13,213,018 at the end of 1930. Total reserves, including depreciation, Dec. 31, 1931, were $4,554,998 in excess of total reserves at the end of the previous year. Total depreciation charged to income in 1931 was $3,255,919 as compared with $2,426,408 in 1930, an increase of $829,511.

Capital surplus, arising largely from the issuance, for properties acquired in 1931, of common stock at substantially above par value, was increased from $37,133, Dec. 31, 1930, to $4,380,626 at the end of 1931. Total capital and surplus Dec. 31, 1931, was $51,907,693 as compared with $42,893,245 Dec. 31, 1930.

Prairie to Exchange Stock Beginning March 31

NEW YORK, March 19. — Notices have gone to stockholders of Prairie Oil & Gas Co. and Prairie Pipe Line Co. that stock certificates in those two companies will be exchanged for certificates in the Consolidated Oil Corp. on and after March 31. Both companies will close their books March 25.

Prairie Oil stock is to be exchanged on a share for share basis. The pipeline stock will be exchanged on a 1 for 1.4 basis.

Pursuant to approval by Sinclair Consolidated Oil Corp. stockholders at the March 1 special meeting, the name of that corporation is being changed to Consolidated Oil Corp.

Scrip is to be issued for fractional shares. This scrip may be exchanged for full shares when a sufficient amount is turned in to equal a full share.

American Republics Corp. Put in Receivership

NEW YORK, March 19.—J. S. Cullinan, Houston, and S. D. Townsend, Wilmington, Del., have been appointed receivers of the American Republics Corp. by the chancery court at Wilmington. Application for the receivership was made by John Walsh, Washington, D. C., a stockholder who alleged the corporation was unable to meet maturing obligations. An answer, admitting the allegations, was filed by Craig F. Cullinan, president.

American Republics is a holding company that operates a producing company, tank car transportation company, and subsidiaries that make oil industry equipment. Its maturing obligations exceed $4,500,000 and its cash resources are less than $125,000, it was alleged.

Republic Production Co., a subsidiary, March 12 demanded payment of $500,000 due on a note and Petroleum Iron Works Co., another subsidiary, demanded payment of a $200,000 note. It was stated that bank loans amounting to $850,000 are due.

Cities Service Has Gain In February Earnings

NEW YORK, March 19.—Cities Service Co. reports earnings of $2,327,305 for February, 1932, after interest and discounts, an increase of $83,648 over the February, 1931, earnings. In the 12 months ended Feb. 29 1932, net to stock and reserves was $22,905,556, compared with $44,626,144 in the 12 months ended Feb. 28, 1931.

The company reported its oil production costs has been decreased and it was doing only protective drilling. It also reported an increase in volume of oil transported by its pipelines.

Supreme Court Upholds Airplane Fuel Tax

WASHINGTON, March 21.—The Supreme Court of the United States, in an opinion written by Chief Justice Hughes, has declared that a gasoline tax of six cents a gallon, levied by South Carolina, is not such a burden on interstate commerce, when sold to a common carrier as to constitute an infringement of the constitution.

Eastern Air Transport, Inc., raised the question by asking for an injunction forbidding the state to collect such a tax on gasoline used by its planes in flying from one state to another. The lower court refused the injunction. The air line thereupon appealed to the highest court.

The mere purchase of supplies or equipment for use in conducting a business which constitutes interstate commerce, said the Chief Justice, was not so identified with that commerce as to make the sale immune from a non-discriminatory tax also imposed upon intrastate commerce. There was no substantial distinction between the sale of gasoline to an airplane engaged in interstate commerce and the sale of coal for the locomotive of an interstate carrier, or the locomotives and cars themselves bought as equipment for interstate transportation, said the court.

A non-discriminatory tax upon sales in such cases, the Chief Justice said, had never been regarded as imposing a direct and therefore unlawful burden on interstate commerce. On the contrary, he said, it was in the nature of a general property tax to which all enjoying the protection of the state might be subjected.

Alco Buys Jackson Engineering

TULSA, March 19.—Alco Products, Inc., has acquired control of the Jackson Engineering Co., Tulsa, which has been prominent in designing and constructing gasoline plants, vapor recovery systems and other refinery construction and design. The Alco company is a division of the American Locomotive Co. Gordon M. Jackson, former president of Jackson Engineering, has been made sales manager of Alco Products and Karl Finsterbusch, who was chief process engineer, joins the technical staff of Alco.

Wilcox Plans $5 Par On Capital Stock

NEW YORK, March 19.—H. F. Wilcox Oil & Gas Co. has notified the New York Stock Exchange of its proposal to place a $5 par value on its 1,150,000 shares of capital stock. The stock at present has no par value. It is planned to exchange new shares for old on a share for share basis.

The Wilcox proposal is part of a movement among corporations which have had no par value on their stock to place values at $1 to $10 a share in order to minimize the amount of transfer tax. No par stocks are paying a transfer tax in New York the size of that paid on $100 par stocks, while other stocks are taxed in proportion to their par values. A doubling of the federal transfer tax is expected.

Nebraska Files Demurrer On Anti-Color Order

LINCOLN, Neb.—The attorney general of Nebraska filed a demurrer in the case to block enforcement of Governor Bryan's order prohibiting the coloring of gasoline unless it had an octane rating of 65 or better. No date has been set yet for argument on the demurrer.

Standard Oil Co. of Nebraska now is bringing out a third grade gasoline for points below the normal schedule. This is a U. S. Motor grade gasoline without color. Normal prices are being maintained on Red Crown and Ethyl gasolines.

Governor Bryan issued his original order Dec. 31 prohibiting the sale of colored gasoline, excepting Ethyl. Farmers brought pressure so the order was modified Jan. 29 to include 65 octane gasoline. The order was to be effective Feb. 15.

The Trunkenbolz Oil Co., Lincoln, distributor for Barnsdall, which has a blue third grade, obtained a temporary restraining order in Lancaster county (Lincoln) district court.

Colorado courts decided on an anti-coloring order in December. The state oil inspector banned all colored gasoline excepting Ethyl. Derby Oil Co., Wichita, marketing a colored, cracked anti-knock gasoline, was its case and the order was declared unconstitutional.

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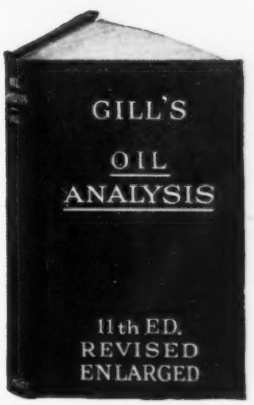

HERE IS A BOOK ON TESTING

OIL ANALYSIS, by A. H. Gill, gives flash, fire and gravity tests for burning and lubricating oils, and also viscosity, friction, and evaporation tests for lubricating oils.

It shows how to examine an unknown oil to determine kind, quality and lubricating powers.

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National Petroleum News
1213 W. 3rd Street Cleveland, Ohio

Transactions in Oil Shares on New York Stock Exchange

1930 High	1930 Low	1931 High	1931 Low	Listed Shares	Par Value	Company	Div. Rate Period	Last Div. Paid	Transactions Week Ended March 19 Sales Shares	High	Low	Last	Week's Change
31 1/8	16 1/8	23	11 1/4	922,075	N.P.	Amerada Corp	50cQ	Jan. 30, 32	1,500	14 1/2	14	14	— 1/2
37	5 1/8	12 3/8	1 1/4	209,180	N.P.	American Republics Corp	....	.....	2,700	2 1/8	1/2	7/8	— 1 5/8
51	30	31	8 3/4	1,240,000	$25	Associated Oil Co	....	June 30, 31	320	9	8	8	— 3/4
51 3/8	16 5/8	23 5/8	8 5/8	2,696,650	25	Atlantic Refining Co	25cQ	Mar. 15, 32	8,500	11 3/4	10 3/4	11	— 1
34	8 3/8	14 1/2	4	2,257,705	25	Barnsdall Corp. A	....	May 11, 31	6,900	4 3/4	4 1/4	4 1/2	— 3/8
35	21	25	12	2,060,966	25	California Petroleum Corp	....	Jan. 1, 29	.....	....	....	....	....
20 3/8	8 1/4	10 1/4	7 3/4	1,444,970	N.P.	Colonial Beacon Oil Co	....	.....	300	10 1/4	10	10 1/4	+ 1/4
30 1/2	7 3/4	12	5	4,720,640	N.P.	Continental Oil Co. (Del.)	....	.....	11,500	6 3/8	6	6	— 1/4
71 1/2	22 3/4	47	9 5/8	314,333	N.P.	General Asphalt Co	25cQ	Mar. 15, 32	1,600	12 1/4	11 1/2	11 1/2	— 1 3/8
116 7/8	29 1/4	68 1/8	15 3/4	96,475	$100	Houston Oil Co	....	.....	5,000	21 1/2	19 1/8	19 1/8	— 2 7/8
11 3/4	6 3/8	14 1/8	3	675,434	25	do new	....	.....	4,600	4 1/4	4	4	— 3/8
28 3/8	3	4 5/8	1 1/8	556,546	10	Indian Refining Co	....	Dec. 15, 20	100	1 1/4	1 1/4	1 1/4	— 1/4
12	3 1/2	4 1/2	1	1,309,100	N.P.	Louisiana Oil Refg. Corp	....	.....	200	1 1/4	1 1/4	1 1/4	0
90	66	55	20	40,000	$100	do pfd	$1.62 1/2Q	Nov. 16, 31	40	16 1/8	16	16	+ 2
10 3/8	1 3/4	3 3/4	1/2	330,000	N.P.	Maracaibo Oil Exploration Co	....	.....	400	1	3/4	3/4	+ 1/8
182	150	171	50 1/8	459,428	$100	Mexican Petroleum Co	....	Apr. 20, 31	30	60	60	60	+ 7
100	100	100	100	120,000	100	do pfd	$2Q	Jan. 20, 32	50	100	100	100	0
33	11	16 3/4	5	1,857,912	N.P.	Mid-Continent Petroleum Corp	....	Feb. 16, 31	1,200	5 3/4	5 3/8	5 1/2	— 1/4
32	16	19 1/2	5 1/8	6,648,052	N.P.	Ohio Oil Co	....	Mar. 14, 31	14,900	6 7/8	6 1/4	6 1/2	— 1/4
64 1/4	42	35 1/8	20	1,000,000	$50	Pan Amer. Pet. & Trans. Co	40cQ	Jan. 20, 32	300	17 1/8	17 1/8	17 1/8	— 3 1/2
67 1/2	30	36 1/2	18 3/4	2,473,916	50	do B non-voting	40cQ	Jan. 20, 32	.....	....	....	....	....
12 3/4	1 3/4	4 1/4	5/8	199,370	N.P.	Panhandle Prod. & Refg. Co	....	.....	100	1	1	1	0
80	47 1/2	20	5	25,666	$100	do pfd	....	July 2, 23	20	5	5	5	— 1 1/2
27 1/4	5 1/8	10 7/8	2 1/8	2,551,084	N.P.	Petroleum Corp. of America	....	June 1, 31	5,400	4 5/8	3 7/8	4	— 5/8
44 3/4	11 1/2	16 5/8	4	4,419,262	N.P.	Phillips Petroleum Co	....	Jan. 2, 31	14,100	6	5 1/8	5 1/2	— 1/2
2 1/2	1/2	1 1/8	1/4	1,184,917	$25	Pierce Oil Corp	....	.....	1,400	1/2	3/8	3/8	— 1/8
52	7 1/2	23 3/4	3 1/2	150,000	100	do pfd	....	Feb. 1, 22	100	6 1/2	6 1/2	6 1/2	0
7 1/8	1 3/8	3 3/8	1/2	2,500,000	N.P.	Pierce Petroleum Corp	....	Feb. 16, 31	2,200	1	7/8	7/8	— 1/8
54	11 1/4	20 3/8	4 1/8	2,441,432	$25	Prairie Oil & Gas Co	....	Mar. 31, 31	1,600	6 1/4	5 3/4	5 3/4	— 3/4
60	16 5/8	26 1/2	5 7/8	4,050,000	25	Prairie Pipe Line Co	....	July 1, 31	7,800	9	8	8 1/8	— 7/8
11 7/8	1	6	1	749,017	50	Producers & Refiners Corp	....	Sept. 15, 23	300	1 1/4	1 1/8	1 1/8	— 3/8
40	11 1/2	16	3	56,907	50	do pfd	....	May 4, 25	10	8 1/2	8 1/2	8 1/2	— 1/2
27 1/4	7 5/8	11 7/8	3 1/4	3,038,370	25	Pure Oil Co	....	Sept. 1, 30	2,200	4 3/4	4 3/8	4 5/8	— 1/4
114 1/4	90 1/2	101 7/8	53 1/2	130,000	100	do 8% pfd	$2Q	Jan. 2, 32	180	59 1/2	56	59 1/2	+ 1/2
28 3/4	4 1/8	6 3/8	3/8	2,126,250	N.P.	Richfield Oil Co. (California)	....	Sept. 1, 30	700	3/4	5/8	3/4	0
25 3/4	5	10 1/4	1 1/4	1,235,814	N.P.	Rio Grande Oil Co	....	July 25, 30	2,600	2 1/2	2 1/8	2 1/2	+ 1/4
56 1/2	36 7/8	42 5/8	13	617,443	$13.40	Royal Dutch Co. (N. Y. Shares)	93.85c	Aug. 4, 31	6,300	19 3/4	17 1/2	17 1/2	— 3
37	9 3/4	20 3/4	5 1/2	1,244,383	N.P.	Seaboard Oil of Del	....	Oct. 15, 24	12,100	8 5/8	7 1/8	8	— 5/8
48 3/4	26	34	5	63,852	£2	Shell Transp. & Trading Co	72.6c	July 23, 31	.....	....	....	....	....
25 1/2	5 1/4	10 1/4	2 1/2	13,070,625	N.P.	Shell Union Oil Corp	....	June 30, 30	2,300	3 7/8	3 1/2	3 1/2	— 1/8
106 1/4	55	78	15	400,000	$100	do pfd	....	July 1, 31	1,900	27	25	27	+ 2
37	5 5/8	11	3 1/4	869,271	10	Simms Petroleum Co	....	Sept. 15, 30	3,400	5 1/4	4 3/8	4 3/4	— 1/2
32	9 3/4	15 7/8	4 1/8	6,103,263	N.P.	Sinclair Cons. Oil Corp	....	Apr. 15, 31	36,000	6 5/8	5 5/8	5 3/4	— 1/8
112 1/4	86	103	64	141,294	$100	do pfd	$2Q	Feb. 15, 32	1,000	89	86	87	0
42	10 1/8	12 1/8	2	1,000,069	25	Skelly Oil Co	....	Dec. 15, 30	1,300	4	3 1/2	3 1/2	— 1/2
99 3/4	42	62	10	120,000	100	do pfd	....	May 1, 31	300	18 3/4	18 1/4	18 1/4	— 3/4
...	...	21	8 1/8	31,273,328	25	Socony Vacuum Corp	25cQ	Mar. 15, 32	22,800	10 1/8	9 1/2	9 1/2	— 1/2
106 3/8	98	105 1/4	87 1/8	764,935	100	S. O. Export Corp. pfd	$2.50S.A.	Dec. 31, 31	700	90 1/4	90	90	+ 1/2
75	42 1/4	51 3/4	23 1/8	13,102,900	N.P.	S. O. California	50cQ	Mar. 15, 32	9,100	26	25	25	— 1
49	14 3/8	19	7 3/4	320,000	$25	S. O. Kansas	....	Mar. 16, 31	200	8 1/2	8 1/2	8 1/2	— 3/8
84 7/8	43 1/8	52 1/8	26	25,639,466	25	S. O. New Jersey	††25cQ	Mar. 15, 32	27,400	29 7/8	28 3/8	28 1/2	— 1 1/2
70	39	45 1/4	26 3/4	1,544,349	N.P.	Sun Oil Co	25cQ	Mar. 15, 32	200	30 1/2	30	30 1/2	— 1 1/2
108 1/4	97 3/4	104 1/2	75	100,000	$100	do pfd	$1.50Q	Mar. 1, 32	50	87	87	87	+ 1/4
9 3/4	3/4	1 3/4	1/4	776,979	N.P.	Superior Oil Corp	....	.....	1,600	3/8	1/4	1/4	— 1/4
60 1/8	28 1/4	36 1/4	9 7/8	9,851,211	$25	The Texas Corp	50cQ	Jan. 1, 32	18,800	12 3/8	11 1/2	11 3/4	— 1/2
14 1/2	4	6 1/2	2	930,432	10	Texas Pacific Coal & Oil Co	....	Dec. 31, 29	400	2 1/8	2	2	— 3/8
17 3/4	5 7/8	9	2 1/8	5,997,872	N.P.	Tide Water Associated Oil Co	....	Feb. 16, 31	20,800	2 3/4	2 1/4	2 3/8	— 1/8
89 3/4	53	68	20 1/2	732,649	$100	do pfd	$1.50Q	Jan. 2, 32	1,100	28 1/8	26 1/4	26 1/2	+ 3/8
31	12	18	10 1/2	2,191,823	N.P.	Tide Water Oil Co	....	June 30, 31	600	9	7 1/2	9	+ 1 1/4
94 1/8	68	83	30	199,446	$100	do pfd	$1.25Q	Feb. 15, 32	600	40	37 1/2	38	— 3
50	20 1/8	26 5/8	11	2,225,302	25	Union Oil Co. of California	35cQ	Feb. 10, 32	2,000	13 1/8	12 1/2	12 3/4	— 3/8
38 1/8	23	25 1/4	16	1,254,048	N.P.	Union Tank Car Co	40cQ	Mar. 1, 32	500	17 1/2	15	15	— 3 1/2
27	4 1/4	7 3/8	1/8	769,531	N.P.	Warner Quinlan Co	....	July 3, 30	100	1 1/4	1 1/4	1 1/4	— 1/4
21	6 1/2	9 3/8	2 3/4	428,067	N.P.	H. F. Wilcox Oil & Gas Co	....	May 10, 28	1,800	4 1/8	4 1/4	4 3/4	+ 1/8

*New high †New low ††Also extra—S. O. New Jersey 25c. Total sales 272,200

Cleveland Stock Market

March 18, 1932

	Bid	Asked	Last Sale
Canfield Oil	75 3/8	....	85
Fred G. Clark	1/2	1	1/2
National Refining	7 1/2	8	8
do pfd	..	98	100

No Chain Store Tax for S. Carolina Stations

COLUMBIA, S. C., March 19.—Filling stations which do not handle accessories are exempt from the South Carolina chain store tax according to a ruling by the state tax commission. Stations which handle only gasoline, oil, grease and anti-freeze preparations are exempt.

The South Carolina law was upheld in federal district court Feb. 2 and collections are being started for the years 1930 to 1932.

Exports of petroleum products from Russia through Black Sea ports during October were: 1,403,000 barrels of gasoline; 377,700 barrels of kerosine; 89,350 barrels of lubricating oils; and 1,195,310 barrels of fuel oil.

New York Bonds

Week Ending March 18

	High	Low	Last	Change
Asso. Oil gold 6s	101 1/2	101	101 1/8	— 5/8
Atlantic Refg. deb. 5s	93 1/4	91 3/4	93 1/4	+1 1/4
Cal. Pet. 5s	76	76	76	+ 1/2
Cal. Pet. 5 1/2s	75	75	75	0
General Pet. 5s	100 1/2	99 3/4	100 1/2	+1 1/2
Humble Oil & Refg. 5s	98 7/8	98	98 7/8	+ 1/8
Humble Oil & Refg. 5 1/2s	100 5/8	100 3/8	100 5/8	+ 1/8
Pan Amer. P & T 6s	101 3/8	101 1/8	101 3/8	— 1/8
Pan Amer. P&Tof Calif. 6s 19	18 1/2	18 1/2	0	
Phillips Pet. 5 1/4s	58 1/2	54 1/2	55	—4 1/4
Pure Oil 5 1/2s	75	73 1/2	75	0
Pure Oil 5 1/2s	71 3/8	70	70 1/2	—2 1/2
Richfield Oil of Calif. 6s	14 3/4	13 3/4	13 3/4	— 1/2
Shell Union Oil 5s	70 1/4	66 3/8	67 3/4	—2 1/2
Shell Union Oil 5s with war.	70 5/8	66 1/2	68	—2 5/8
Sinclair Con. Oil 7s	93	92	92	— 1/4
Sinclair Con. Oil 6 1/2s	89	88	88 1/4	— 3/4
Sinclair Con. Crude 5 1/2s	98	97	97 1/4	+ 1/4
Sinclair Pipeline	94 1/2	93 3/8	94	0
Skelly Oil 5 1/2s	59 1/2	56 3/4	57	—2 3/8
S. O. N. J. 5s	101 1/2	100 3/8	101 3/4	+ 3/8
S. O. N. Y. 4 1/2s	93	91	92	—1
Union Oil of Calif 6s A	99 1/2	99	99	—1
Union Oil of Calif. 5s C	97 1/2	96	97 1/2	0
Warner-Quinlan 6s	30 1/8	30 1/8	30 1/8	0
White Eagle Oil 5 1/2s	100	99 1/2	100	+ 1/4

New York Curb Bonds

Week Ending March 18

	High	Low	Last	Change
Beacon Oil 6s '36	96 1/2	96	96	+ 1/2
Cities Serv. 5s '50	47	45 1/2	46 1/8	— 7/8
Cities Serv. 6s '66	46 1/2	44 3/4	45	—1 1/4
Cities Serv. G. 5 1/2s '42	57 3/8	56 1/4	56 1/2	—1 1/2
Cities Serv. Gas. P. 6s '43	63 3/4	63	63	— 1/4
Cont. Oil 5 1/2s '37	82 3/4	80 1/4	80 1/4	— 3/4
Empire O & R 5 1/2s '42	48	47 3/8	48	0
Gulf Oil 5s '37	95	93 1/2	94 1/2	—1 1/8
Gulf Oil 5s '47	94 3/8	93	93 1/4	—1 3/8
Indep. Oil 6s '39	85 1/2	85	85 1/2	+2 1/2
Sun Oil 5 1/2s '39	94 1/2	86	88	—8

Pittsburgh Stock Exchange

Transactions Week Ended March 18, 1932

	Sales	High	Low	Last	Change Over Week
Ark. Nat. Gas	100	2 1/8	2 1/8	2 1/8	+ 1/8
do pfd	285	5 1/8	5	5	0
†Columbia Gas & Electric	1,505	14 5/8	13 1/2	13 1/2	— 1/2
Lone Star Gas	5,968	7	6 1/4	6 3/4	— 1/2
Plymouth Oil	25	7 1/2	7 1/2	7 1/2	0
Shamrock Oil & Gas	100	1	1	1	— 1/4
Western Public Service	555	4 3/4	4 1/2	4 3/4	+ 1/8

†Payable in new 5 percent preferred stock.

Pittsburgh Curb

Gulf Oil of Pa	1,200	27	27	27	....

Kentucky Gas Tax Law is Strengthened

LOUISVILLE, Ky., March 18.—Due largely to the activity of the Kentucky Petroleum Marketers Association in taking the issue to the public, the only legislation directly affecting the oil industry passed by the session of the state legislature which just adjourned, was a bill strengthening the state gasoline tax law.

Among the proposed measures, designed to raise revenue, which were killed, according to Herbert L. Clay, secretary and treasurer of the association, was one raising the amount of the gasoline tax from 5 to 6 cents a gallon, and diverting 2 cents to the general revenue fund. Another proposed tax of 5 cents a quart of lubricating oil and 5 cents a pound on grease.

Some of the important provisions of the revised gasoline tax law are, according to Mr. Clay:

No exemptions from the tax.

The state tax is the only gasoline tax that can be levied by state, county or city governments.

All taxes collected under the bill can be used only for construction, maintenance and repair of roads, highways and bridges.

Kentucky refiners must report all shipments of gasoline, both to points inside and outside the state, to the state tax commission.

Transportation companies must report to the tax commission all shipments of gasoline, both within the state and those originating outside.

Failure to remit the tax is defined in the law as embezzlement. First offense carries a fine of not over $1000 or imprisonment for not over 6 months; second offense a mandatory sentence of one to 5 years.

Every wholesaler who buys gasoline upon which the tax is not previously paid must be licensed, and bonded in a minimum of $5000. Operation without a bond carries a fine of from $100 to $1000 or imprisonment of from 30 days to a year. Each day of operation without a license constitutes a separate offense.

The bill is on the governor's desk for his signature, and carries an emergency clause making it effective when signed by the governor, says Mr. Clay.

David Gregg on Pipeline Board

NEW YORK, March 19.—David Gregg III has been elected a director of the Indiana Pipe Line Co. to fill a vacancy caused by the death of E. T. P. Greenidge. Other directors were re-elected. Officers were all re-elected at a directors' meeting that followed the annual meeting of stockholders. The date of the annual meeting was changed to the fourth Thursday in May.

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TEKAMAH, Neb.—Tekamah Oil Co. here, in reply to a news questionnaire sent out by NATIONAL PETROLEUM NEWS, says that its merchandising stunt is to sell for cash, which it considers unusual.

Kendall Refining In Business 50 Years

BRADFORD, Pa.—The 50th anniversary of the Kendall Refining Co., refiner and marketer of pure Bradford grade Pennsylvania crude oil and its products, is being celebrated this year.

One of the means by which the company calls this to the attention of customers is by gilded seals attached to its stationery, invoices and all outgoing mail.

The company began business in 1882. It operates a refinery at Bradford with 3500 barrels daily crude capacity. It is equipped with Dubbs cracking units.

Derby Leases Walker Stations

WICHITA, Kans., March 19.—The Derby Oil & Refining Corp. has acquired a one year lease on the Walker Oil Co., Omaha, with an option to buy the properties at a later date from E. A. Walker.

The Walker company has bulk plants at Omaha, Council Bluffs, Red Oak and Shenandoah, and operates 32 service stations and has about the same number of resale accounts.

Standard Oil Stocks on New York Curb Market

1930 High	1930 Low	1931 High	1931 Low	Shares Issued	Par Value	Company	Div. Rate	Period	Last Div. Paid	Transactions Week Ended March 19 Sales Shares	High	Low	Last	Week's Change
25	11¼	16	6	40,000	$25	Borne Scrymser Co.	....		Oct. 15, 30	100	6	6	6	0
69	39⅞	56	30	200,000	50	Buckeye Pipe Line Co.	$1Q		Mar. 15, 32	100	34	34	34	+ 2
184⅞	100¼	129½	75	120,000	25	Chesebrough Mfg. Co.	††$1Q		Dec. 30, 31	100	85½	85½	85½	— 3
7⅝	3	3½	1⅝	5,977,873	N.P.	Creole Petroleum Co.	....		.....	200	2⅛	2⅛	2⅛	— ⅛
65⅝	20¼	39	20⅝	30,000	50	Cumberland Pipe Line Co.	....		June 15, 31	.....	....	....	....	....
54¾	26	36	19	50,000	100	Eureka Pipe Line Co.	$1Q		Feb. 1, 32	.....	....	....	....	....
6¾	2½	3	1	280,000	N.P.	Galena Oil Corp.	....		.....	.....	....	....	....	....
119	57¼	72	44¼	2,974,645	$25	Humble Oil & Ref'g. Co.	50cQ		Jan. 1, 32	1,400	46½	44⅛	44⅛	— 3⅝
30	15	18½	7⅜	26,557,496	N.P.	Imperial Oil Corp.	12½cQ		Mar. 1, 32	.....	....	....	....	....
28	15	18	7⅛	.....	N.P.	do registered	12½cQ		Mar. 1, 32	400	8¾	8⅜	8⅜	— ⅞
41	14½	21⅛	5½	300,000	$10	Indiana Pipe Line Co.	25cQ		Nov. 14, 31	1,200	7½	5	5	— 2¼
24	11⅜	15½	7⅜	14,247,088	N.P.	International Petroleum Co.	25cQ		Mar. 15, 32	2,200	⅛	⅛	⅛	0
22⅜	11½	17½	5	509,000	$12.50	National Transit Co.	25cQ		Mar. 15, 32	600	10½	10	10⅛	— ⅜
21	10½	14½	5⅞	100,000	5	New York Transit Co.	††15cQ		Jan. 15, 32	.....	....	....	....	....
54	26¼	35½	20	120,000	10	Northern Pipe Line Co.	$1.50S.A.		Jan. 2, 32	300	4¼	4	4	— ¼
108	100⅜	102⅞	67½	579,465	100	Ohio Oil Co. pfd.	$1.50Q		Mar. 15, 32	.....	....	....	....	....
32	12	15½	5½	400,000	25	Penn Mex. Fuel Co.	50c		Oct. 31, 31	.....	....	....	....	....
33	4⅞	16⅞	3¼	160,000	25	Solar Refining Co.	....		Dec. 20, 29	.....	....	....	....	....
20⅛	6¾	17	7	100,000	10	Southern Pipe Line Co.	50cQ		Mar. 1, 32	.....	....	....	....	....
45⅞	18	23⅞	9¼	1,200,000	25	South Penn Oil Co.	25cQ		Dec. 31, 31	200	13	12	12	— 1⅞
4	32	42½	25	35,000	50	Southwest Pa. Pipe Lines	$1Q		Dec. 31, 31	.....	....	....	....	....
59⅞	30	38½	13½	16,996,596	25	S. O. Indiana	25cQ		Mar. 15, 32	12,100	16⅞	16	16	— 1
40½	18⅞	23⅝	12¼	2,588,735	10	S. O. Kentucky	40cQ		Dec. 31, 31	3,000	14⅜	13¼	13¼	— 1⅜
48⅞	34	36½	16	190,822	25	S. O. Nebraska	50cQ		Dec. 21, 31	200	18¼	17½	17½	— 1
108½	43¼	62½	23	811,112	25	S. O. Ohio	62½cQ		Jan. 2, 32	150	26	24	24	— 2¼
....	....	115¼	78½	120,000	100	do 5% pfd.	$1.25Q		Jan. 15, 32	.....	....	....	....	....
10	4	10	1	34,158	25	Swan Finch Oil Corp.	....		Jan. 15, 29	10	12½	12½	12½	+ 1

*New high †New low ††Also extra—Chesebrough $1; N. Y. Transit 10c.

Oil and Royalty Stocks on New York Curb

1930 High	1930 Low	1931 High	1931 Low	Par Value		Sales Shares	High	Low	Last	Week's Change
4½	½	1¾	¼	N.P.	American Maracaibo.	500	⅜	¼	¼	— ⅛
16¾	4⅛	6½	1⅞	N.P	Arkansas Nat. Gas.	800	2⅛	2	2	— ⅛
16⅜	4⅜	6¾	1⅞	N.P.	do A.	7,500	2⅛	1⅞	2	— ⅛
8⅛	6¼	7	3⅞	$10	do pfd.	500	5	5	5	0
1	¼	1	½	N.P.	Atlantic Lobos	.....	....	....	....	....
1½	⅛	3¼	¼	$50	do pfd.	.....	....	....	....	....
21	13⅜	16⅞	6¼	N.P.	British American coup.	100	9⅝	9⅝	9⅝	— ⅛
....	....	16¾	10	N.P.	do registered	.....	....	....	....	....
2¾	⅝	2⅜	¼	$¾	Carib Syndicate	.....	....	....	....	....
44¼	13½	20¾	5	N.P	Cities Service	49,400	6¼	5⅜	5⅞	— ⅜
93⅞	78¼	84¾	35⅜	$100	do pfd.	2,300	53⅛	51⅝	52⅛	— ⅞
9	7¼	7½	4	10	do pref. B.	.....	....	....	....	....
89⅞	80	84	41½	100	do pref. BB.	20	44¼	44¼	44¼	+ ¼
8¼	1⅛	3⅛	¼	N.P.	Colon Oil Corp.	.....	....	....	....	....
21	3⅜	7⅛	1	N.P.	Col. Oil & Gas. vtc.	1,600	1¼	1	1	— ¼
....	....	....	....	N.P.	Consolidated Oil w.i.	.....	....	....	....	....
5⅞	2	2⅝	1	$1	Consolidated Royalty	.....	....	....	....	....
74⅝	1¼	3¾	⅜	N.P.	Cosden Oil	700	¾	⅝	⅝	— ⅜
70	10¼	15	1	$100	do pfd.	.....	....	....	....	....
1	¼	⅝	⅛	N.P.	Crown Central Petrol.	.....	....	....	....	....
21¾	2½	5	1¾	N.P.	Darby Petroleum	700	2⅛	2	2	0
11	2	6	1½	N.P.	Derby Oil & Refining	800	1⅞	1¾	1¾	— ¼
60	30	40¼	25	N.P.	do pfd.	50	21⅜	21⅜	21⅜	+ 1¼
106⅞	58½	76	25⅜	$25	Gulf Oil Corp.	9,700	31⅞	26½	29	— ¾
40¾	36	9¾	9¾	....	Honolulu Oil Corp.	.....	....	....	....	....
47½	12⅝	16⅞	4¼	N.P.	Indian Ter. Ill'g. Oil A	.....	....	....	....	....
53½	12⅝	16⅞	5	N.P.	do B.	200	3⅞	3⅞	3⅞	— ⅛
1¾	⅜	⅝	⅛	$5	Intercontinental Petrol.	2,200	⅛	⅛	⅛	0
3	⅞	1⅞	¼	N.P.	Kirby Petroleum	1,200	⅜	⅜	½	0
4¾	½	1½	¼	$25	Leonard Oil Devel.	3,400	1/16	¼	¼	0
29	4⅞	6¾	1½	N.P.	Lion Oil Refining	.....	....	....	....	....
55⅞	19⅝	29	5½	N.P.	Lone Star Gas	1,500	6⅞	6⅜	6⅜	— ½
31	5½	....	....	$25	MacMillan Petroleum	.....	....	....	....	....
½	⅛	1¾	1/16	$1	Magdalena Syndicate	35,100	⅛	1/16	1/16	0
16	3	5	1⅞	N.P.	Margay Oil Co.	100	6	6	6	0
7⅛	1¾	4⅞	1½	N.P.	Mexico-Ohio Oil	.....	....	....	....	....
....	....	8⅞	½	N.P.	Michigan Gas & Oil	100	1	1	1	— ⅛
11⅞	2¼	4⅝	⅞	N.P	Mid. States Pet A vtc.	100	1	1	1	0
6	⅝	1½	¼	N.P.	do B vtc.	200	½	½	½	0
36⅛	5	11	¾	$5	Missouri-Kansas P. L.	12,200	⅝	1/16	1/16	— 1/16
6	⅝	⅝	⅛	1	do B vtc.	100	1/16	1/16	1/16	0
⅝	⅛	⅞	⅛	1	Mountain & Gulf	300	⅛	⅛	⅛	0
12½	3¾	5⅞	2	10	Mountain Producers	500	2⅞	2⅜	2⅜	— ⅜
41⅜	19⅛	26½	9¾	N.P.	National Fuel Gas.	700	12½	12¼	12½	— ⅛
3½	1¼	1½	½	$5	New Bradford Oil	100	⅝	⅝	⅝	— ⅛
3⅛	2¼	2¼	¾	10	New England Fuel	.....	....	....	....	....
16⅞	4	....	....	25	N. Y. Pet. Royalty	.....	....	....	....	....
....	....	6½	6½	10	N. American Oil	.....	....	....	....	....
11¼	2¼	3¼	⅝	N.P.	North Central Texas	.....	....	....	....	....
4⅛	⅝	2½	¼	N.P.	North European Oil	600	¼	¼	¼	0
11⅝	3⅛	5	⅜	N.P.	Oilstocks Ltd. A	.....	....	....	....	....
11½	4½	5	2	N.P.	do B.	.....	....	....	....	....
19½	5½	15	3	N.P.	Pacific Western Oil	300	4⅝	4¼	4¼	— ½
2½	¼	¾	1/16	N.P	Pandem Oil	.....	....	....	....	....
4⅜	1	2	⅝	N.P	Pantepec of Venezuela	.....	....	....	....	....
5⅞	½	1⅛	⅛	....	Petroleum Corp. war.	.....	....	....	....	....
27½	16¼	19	6	$5	Plymouth Oil	200	7⅛	7⅛	7⅛	— ⅛
8	3¼	4½	¼	N.P.	Producers Royalty	.....	....	....	....	....
99	81¾	83½	45¾	$100	Pure Oil 6% pfd.	60	45¾	44	45¾	+ 2¼
10⅛	1½	2½	⅝	N.P	Red Bank Oil	.....	....	....	....	....
5⅜	⅝	2¼	¼	N.P.	Reiter-Foster Oil	900	½	½	½	0
23½	6½	11	¼	$25	Richfield Oil pfd.	.....	....	....	....	....
25	2¼	5	1¾	N.P.	Root Refining pfd.	.....	....	....	....	....
12⅞	5½	3¾	½	$10	Roy. Corp. of Amer. pfd	.....	....	....	....	....
8⅜	2	2⅞	⅝	N.P.	Ryan Consolidated	500	⅞	¾	¾	— ⅛
2½	⅛	1⅜	⅛	$10	Salt Creek Consol	.....	....	....	....	....
15¾	5¼	3⅞	⅝	10	Salt Creek Producers	800	4	3¾	3⅞	— ⅛
8	1¾	5¼	1	25	Shreve. El Dorado P.L.	400	1⅛	1	1	— ¼
17	6	7½	3½	N.P.	Southland Royalty	.....	....	....	....	....
10	2	5¼	¼	$5	Sunray Oil	7,200	1/16	⅛	1/16	0
19½	8	12⅞	2½	N.P.	Texon Oil & Land	100	6	6	6	0
47½	19	24½	9½	$25	Union Oil Associates	.....	....	....	....	— ⅛
4½	⅝	1⅞	¼	5	Venezuela Petroleum	500	⅜	⅜	⅜	0
5	2	3½	1½	1	Woodley Petroleum	100	2	2	2	0
2½	⅝	2¼	¼	N.P.	Y Oil & Gas	2,900	⅜	5/16	5/16	—

*New high †New low

Oil Dividends

Declared Last Week

Company and Period	Amount	Payable	Stock of Record
Cities Service m.	2½c	May 2	Apr. 15
do stock m.	½%	May 2	Apr. 15
do pfd. m.	50c	May 2	Apr. 15
do pref. B m.	5c	May 2	Apr. 15
do pref. B m.	50c	May 2	Apr. 15
Mexican Pet. pfd. q.	$2	Apr. 2	Mar. 31
Pan Amer. Trans. q.	40c	Apr. 20	Mar. 31
do B q.	40c	Apr. 20	Mar. 31

Awaiting Payment

March 19, 1932

Company and Period	Amount	Payable	Stock of Record
Ark. Nat. Gas pfd. q.	15c	Apr. 1	Mar. 15
British American Oil q.	20c	Apr. 1	Mar. 15
Canfield Oil q.	$1	Mar. 31	Mar. 20
do q.	$1	June 30	June 20
Chesebrough Mfg. Co. q.	$1	Mar. 31	Mar. 10
do extra	50c	Mar. 31	Mar. 10
Cities Serv. m.	2½c	Apr. 1	Mar. 15
do stock m.	½%	Apr. 1	Mar. 15
do pfd. m.	50c	Apr. 1	Mar. 15
do pref. B	5c	Apr. 1	Mar. 15
do pref. BB	50c	Apr. 1	Mar. 15
Humble Oil & Refg. q.	50c	Apr. 1	Mar. 2
Lone Star Gas q.	15c	Mar. 31	Mar. 15
Margay Oil q.	25c	Apr. 11	Mar. 21
McColl Frontenac pfd. q.	$1.50	Apr. 15	Mar. 31
Mountain Prod. q.	20c	Apr. 1	Mar. 15
New York Transit q.	10c	Apr. 15	Mar. 25
N. Cent. Texas pfd. q.	$1.62½	Apr. 1	Mar. 10
Plymouth Oil q.	25c	Apr. 1	Mar. 18
Pure Oil 5¼% pfd. q.	$1.50	Apr. 1	Mar. 10
do 6% pfd. q.	$1.50	Apr. 1	Mar. 10
do 8% pfd. q.	$2	Apr. 1	Mar. 10
South Penn Oil q.	25c	Mar. 31	Mar. 15
S. W. Pa. Pipe Lines q.	$1	Apr. 1	Mar. 15
S. O. Nebraska q.	50c	Mar. 21	Feb. 27
S. O. Kentucky q.	40c	Mar. 31	Mar. 15
S. O. Ohio q.	62½c	Apr. 1	Mar. 15
do pfd. q.	$1.25	Apr. 15	Mar. 31
The Texas Corp. q.	25c	Apr. 1	Mar. 4
Texas Oil & Land q.	25c	Mar. 31	Mar. 10
Tide Water Assoc. pfd. q	$1.50	Apr. 1	Mar. 19
Tide Water Oil.	25c	Mar. 31	Mar. 19

Paid Last Week

Company and Period	Amount	Date Paid
Atlantic Refining q.	25c	Mar. 15
Buckeye Pipe Line q.	$1	Mar. 15
General Asphalt q.	25c	Mar. 15
Hickok Oil Corp. s.a.	50c	Mar. 15
International Petrol. q.	25c	Mar. 15
McColl Frontenac q.	15c	Mar. 15
National Transit q.	25c	Mar. 15
Ohio Oil pfd. q.	$1.50	Mar. 15
Socony-Vacuum q.	25c	Mar. 15
S. O. California q.	50c	Mar. 15
S. O. Indiana q.	25c	Mar. 15
S. O. New Jersey q.	25c	Mar. 15
do extra	25c	Mar. 15
Sun Oil q.	25c	Mar. 15

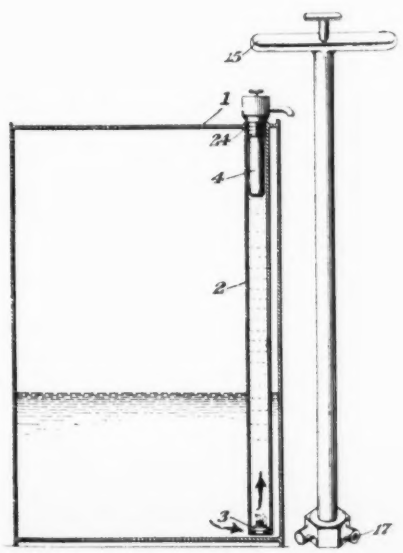
NEW EQUIPMENT

A MOTOR oil container which is non-refillable insofar as substitution is concerned has been devised by Dorsey Owings, an advertising man here, who was formerly with the Indian Refining Co. Patent applications are now pending.

His device uses the ordinary one time shipper, except that all bung holes on sides and top are eliminated except one which is used both to fill and empty the container. It is shown at 24 on the drawing. At this point is also an air vent. At the hole 24, on the inside, is a well, 2, made of tubing extending to the bottom of the container, at which point it is fastened. At the bottom of this well is a valve 3, of special construction, which permits the contents of the container to flow in one direction. The ordinary type of barrel pump is shown at 4.

When the container is empty it cannot be refilled until the valve, 3, is disengaged. Its disengagement is effected by the use of a key, 15, the bottom of which, 17, engages with the valve, upon insertion in the tubing. After the key has disengaged the valve, it is withdrawn from the tube, thereby permitting the oil to flow through the tube and the valve into the tank. When the container is filled, the key is again inserted, locking the valve and permitting the oil to flow only from the container through the well or tubing.

The key and valve are provided with suitable registering device, so that no key will work unless it is specially constructed for the particular valve employed.



A NEW device that will determine the alcoholic content of any beverage and all liquids has been developed by the C. J. Tagliabue Mfg. Co., Park and Nostrand Aves., Brooklyn, N. Y. It is known as the Tag Twin Ebulliometer and it is described in bulletin No. 1017 as "the only apparatus with which a really correct determination of alcohol in liquids, based upon boiling points, can be made under any conditions, as it automatically corrects changes of prevailing air pressure during the test."

The device consists of a graduated measuring glass for the liquid to be tested, two thermometers, one provided with a sliding scale to determine the boiling point of the beverage and the other without scale for the water container, all placed over an alcohol burner. The test is made by observing the boiling point of the alcoholic liquid as compared with water.

It is suitable for installing in laboratories or homes.

* * *

APPROVAL by the Underwriters Laboratory of the "Varec" Entrainment Separator manufactured by the Vapor Recovery Systems Co. has been granted for the installation of the arrestor "within 15 feet of the open end of a vent pipe, and also for insulation between a vacuum-pressure vent valve and an oil tank. According to statements received, this is the only arrestor which carries this approval.

It is known that the cooling action of the arrestor material in the path of the gases condenses a considerable amount of the heavier hydrocarbons. For this reason it is claimed to be imperative that the arrestor be installed in such manner and position as to drain this condensed liquid back to the original tank. To do this, the arrestor must be installed between the vent valve and the tank.

* * *

ACHESON OILDAG CO., Port Huron, Mich., has published two technical bulletins on "Graphited Oils" and the "Importance of Colloidal Graphite Lubricants in 'Running-In' Operations," which are available on request to the company.

STERLING, Col.—The Arrow Oil Co. which opened for business last September, reports catering to tourist trade and to women at its stations by having exceptionally clean and modern rest rooms. The company is a member of the A. A. A.

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This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions.

Anderson-Prichard Oil Corp. 7

Bethlehem Steel Co. 61
Birmingham Tank Co. 63
Brown Sheet Iron & Steel Co. 67
Buckeye Iron & Brass Works 2

Calumet Refg. Co. 41
Chek-Chart Corp. 61
Cincinnati Adv'g. Products Co. 3
Col-Tex Refg. Co. 7

Erie Meter Systems, Inc. 5

Goodyear Tire & Rubber Co. 37
Gousha Co., H. M. ..... Fourth Cover
Gulf Refining Co. 52

Leland Electric Co. 51

McKee & Co., Arthur G. 55
Morrison Bros. 8

National Petroleum News 6-70-80
Nat'l Petroleum Mutual Fire Ins. Co. 75
Neptune Meter Co. 1

Paraflow 45

Skelly Oil Co. 4
Standard Oil Development Co. 45

Truscon Steel Co. 65

United States Air Compressor Co. ..... Third Cover
Universal Oil Products Co. 31

Viking Pump Co. ..... Second Cover

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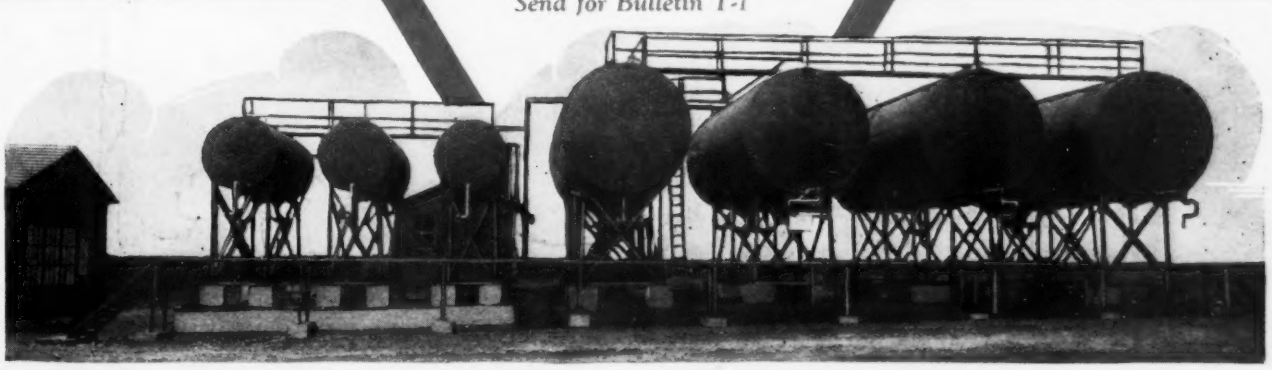

The Sharmeter · Sharlite · Sharfont · WELDCO TRUCK TANKS

NATIONAL PETROLEUM NEWS—March 30, 1932—Vol. XXIV—No. 13

Published every week at 1213 W. 3rd St., Cleveland, O. Subscription rate $3.50 per year in U. S. and Mexico, Canada $6 (including duty)—$5 foreign. Entered as second class matter January 17, 1910 at Cleveland, O., postoffice under act of March 3, 1879, by National Petroleum Publishing Co.

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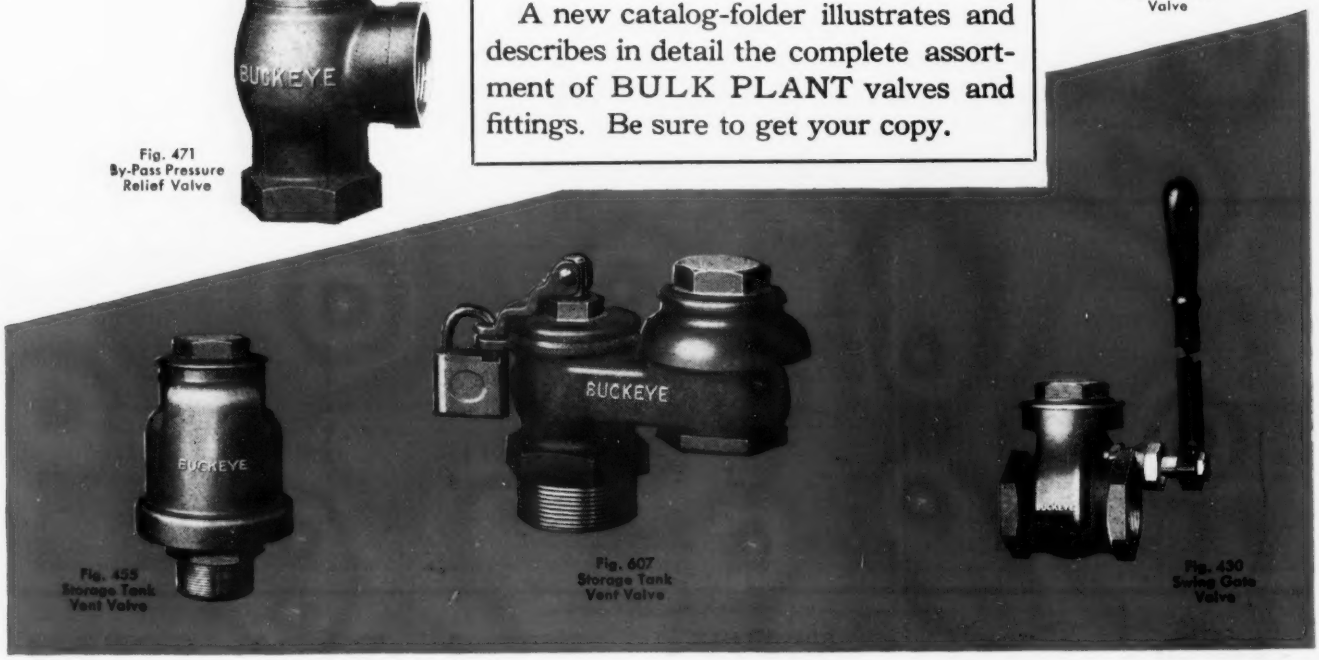
Fig. 612
Safety Check
Valve

Fig. 471
By-Pass Pressure
Relief Valve



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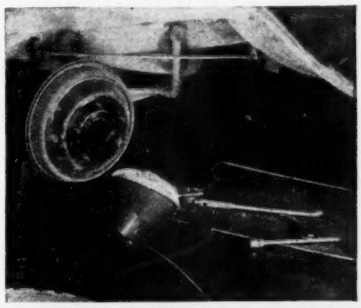

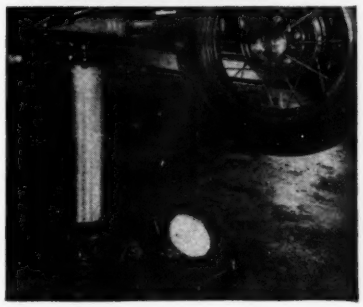

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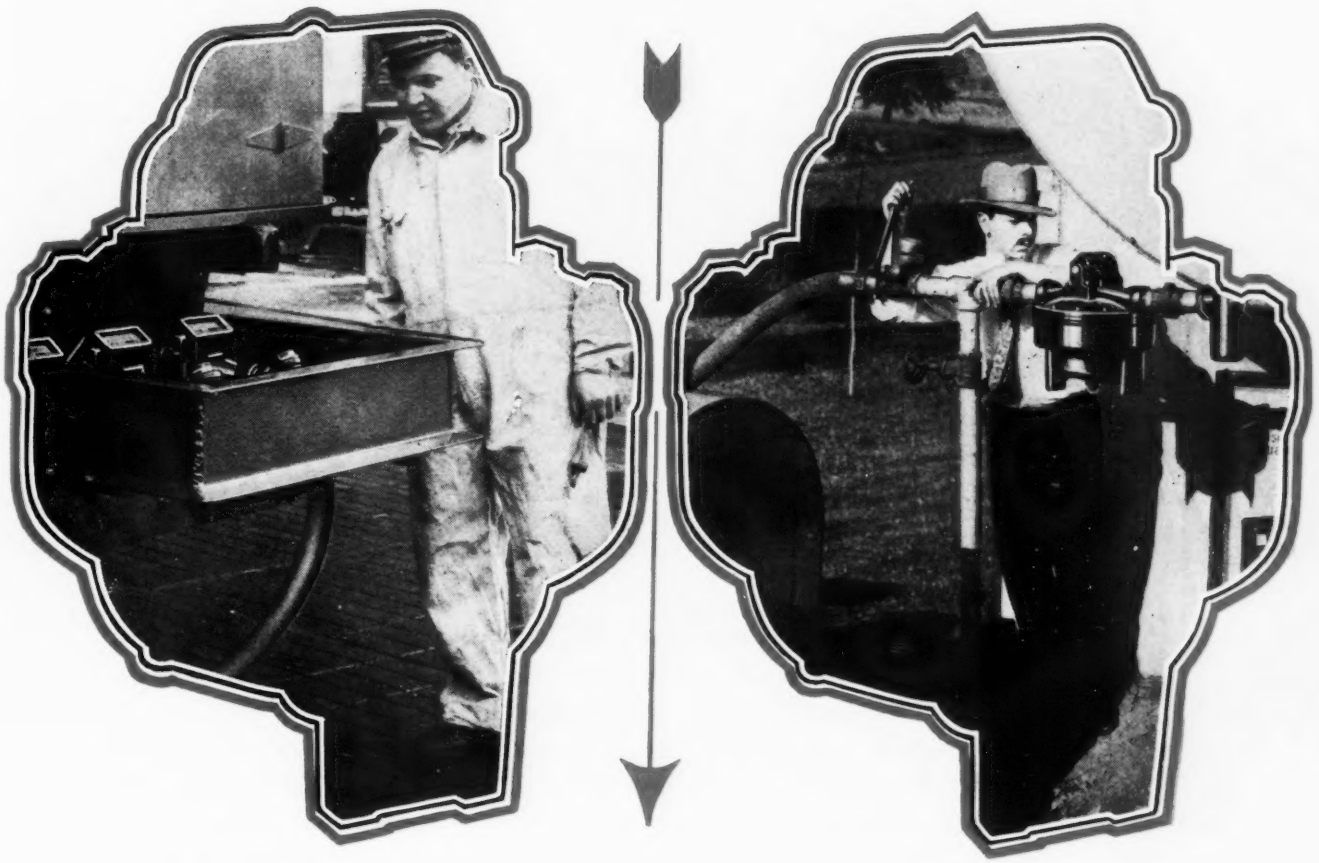

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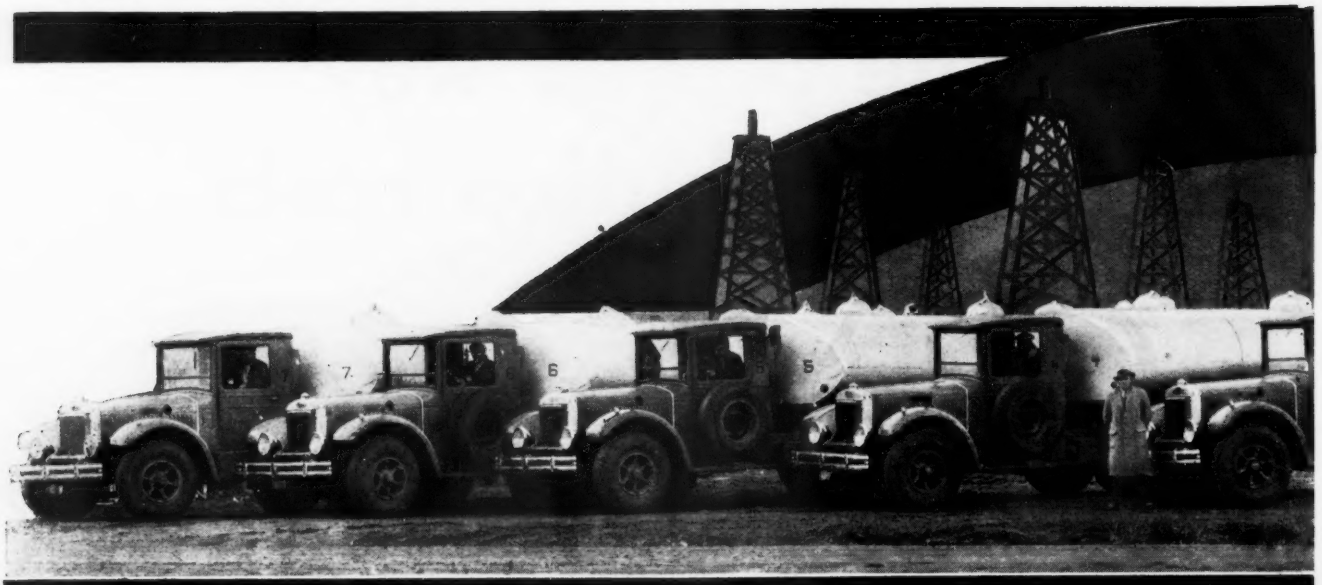


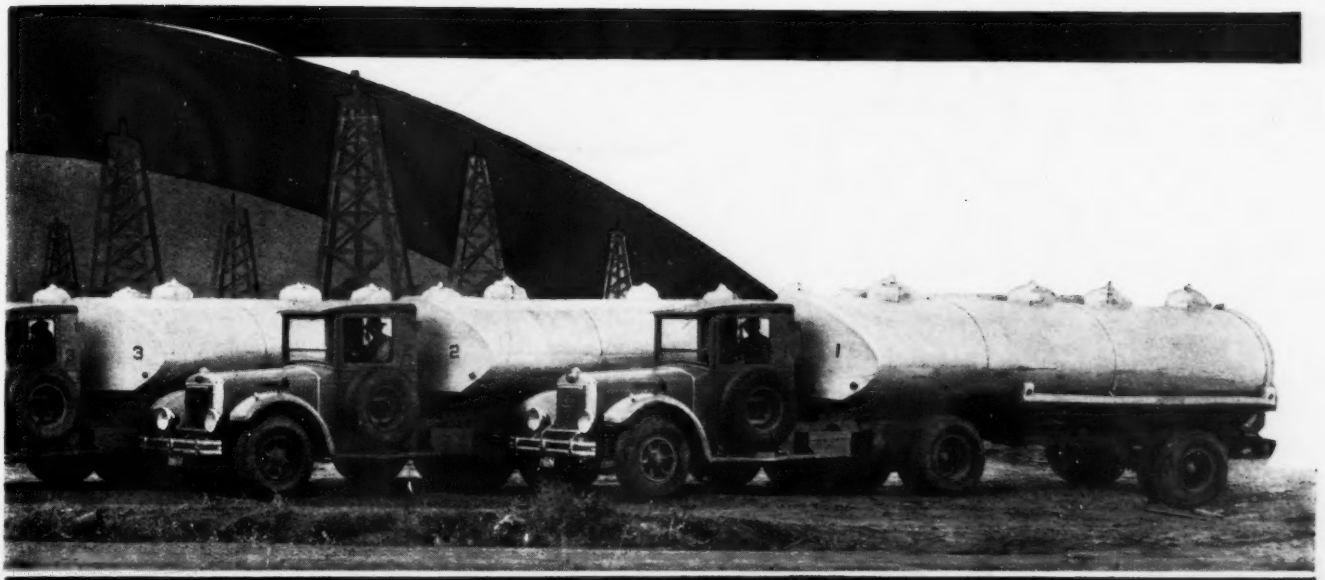
WITH THE PRECISION THESE 7 TANKS MOVED

THIS is the story of a highly specialized transportation problem solved by Standard Steel Works engineering. ¶Due to pending highway legislation, which threatened the operation of bulk haul trains over Texas highways, it was necessary to design this fleet to give it the greatest possible earning capacity over a short period of time. It was also imperative that these tanks be flexible enough to comply with the road laws of other states, should it be necessary to move the fleet out of Texas. ¶The solution of this problem is pictured above in the fleet of aluminum semi-trailer truck tanks which went into service in Texas, August 15th, 1931. The tanks are 4-compartment, 3,200 gallons capacity. The trailers are by Trailmobile; the tractors by Mack. ¶In the 132 days in which these units operated in Texas, the seven

Standard Steel Works

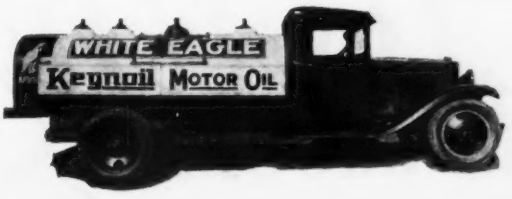
North Kansas City, Mo., U.S.A.

ORIGINATORS OF THE ALUMINUM TRUCK TANK



OF A RAILROAD-
4,950,000 GALLONS in 132 DAYS

tanks transported 4,950,000 gallons of gasoline, delivering it to points within a 250 mile radius. This was an average of 5,356 gallons per day per truck tank. ¶On December 31st, 1931, when the Texas road laws changed, this fleet was moved into Kansas and Missouri where these tanks now are operating. The tanks comply fully with the road laws of the states in which they are now being used. ¶This unusual fleet is another demonstration of the Standard Steel Works axiom: "We do not sell so many pounds of sheet steel or aluminum welded into a tank—we sell sound engineering knowledge and skillful design applied to a particular problem of transportation." ¶May we help you work out your specifications on truck tanks either in steel or aluminum?



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32-36	Overhead uncracked Gas Oil
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●

Send for this G&B Catalog. It's free to all recognized oil marketers. A request on your letterhead will bring you a copy by return mail.

Write us today—

GILBERT AND BARKER
MANUFACTURING COMPANY
SPRINGFIELD MASS., U. S. A.
PUMPS AND TANKS FOR THE OIL TRADE
TRADE MARK G&B

(Enlarged cards of this picture on request)

NOT CHANGING YOUR GREASE FOR SUMMER IS AS

FOOLISH AS THIS

Grease, if it is made to render the most efficient lubrication, must be compounded with temperature as one of the factors governing the chemistry.

International Greases are made in that manner. One type covers the winter range of temperature and another type the summer range.

Nothing pays handsomer dividends than proper lubrication of machinery. Your customers' best interests are served and your business increased by insistent selling of the idea of changing from winter to summer lubrication.

Don't overlook this source of big profit for the next two months.

Specialize on it. You will earn good will and good money.

SPECIALIZING IN SPECIAL LUBRICANTS

During the past several years, there have been many changes in the mechanical design of automotive vehicles. A large number of these changes such as Free Wheeling, Tryon Shackles, Synchro-Mesh Transmission and other innovations require lubricants different from those in use in the past.

We would be glad to send detailed descriptions of the new greases developed for these purposes and interesting facts pertaining to their use.

Write for Quotation Sheet.

Manufacturers of Automotive, Industrial and Marine Grease of high quality and absolute uniformity.

100% *Paraffin Motor Oils; and Two Base Motor Oils.*

FOR SALE ONLY TO JOBBERS AND REFINERS

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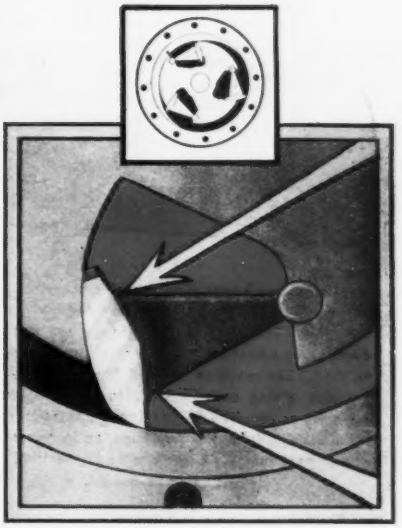
International Lubricant Corporation

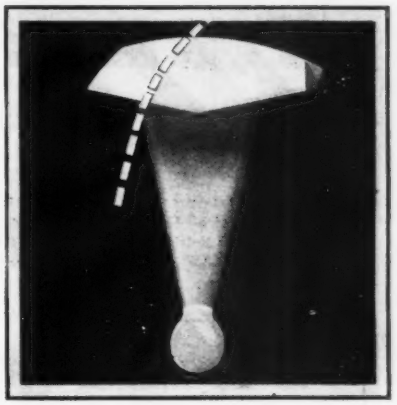
NEW ORLEANS LOUISIANA

3 ALL IMPORTANT ADVANTAGES of the "Bucket" TYPE ROTARY



Minimum Wear and Power Consumption

Equal pressure is applied to both sides of the bucket in action—perfect hydraulic balance. Result—a very light, positive contact with cylinder wall, and consequently a minimum of wear and power consumption.



Long Sustained Efficiency

As wear occurs the buckets simply swing out a trifle further. Full volumetric efficiency is therefore constantly maintained until wear reaches the point indicated by the dotted line in the photo of the bucket—which obviously requires a long, long period of service.

Quick, Easy, Cheap, Replacements

When the buckets finally do wear out, practically new pump efficiency can be restored very inexpensively by simply slipping in a new set of buckets—a fifteen minute job.

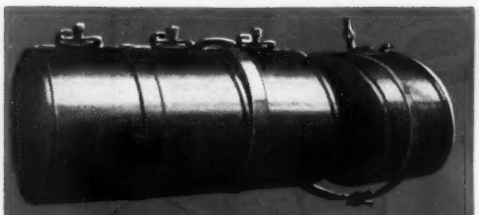
The "Bucket" Design is Blackmer's exclusively. Let us send you the complete facts. Then decide for yourself whether or not any other pump can give you equal economy and efficiency.

BLACKMER PUMP CO.

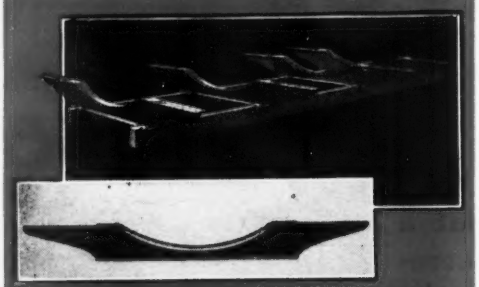
1809-1 Century Ave. Grand Rapids, Mich.

BLACKMER ROTARY PUMPS

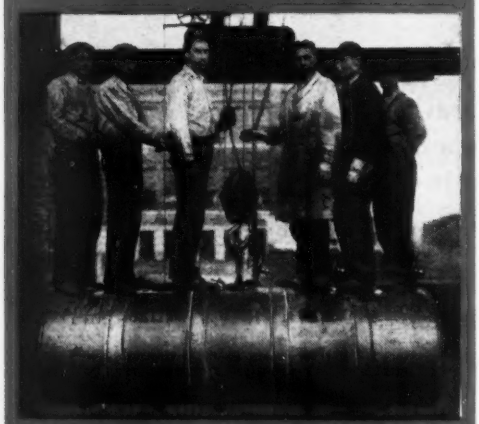
Let's Get Down to COLD FACTS



Steel retention bands bind Farrell's complete unit compartments together into a sturdy tank of remarkable flexibility. The individual bulkheads are less liable to damage by vibration, due to Farrell method of welding to shell. The machine flanged heads can be made to any size, giving unlimited choice of width, height and capacity as required for maximum payload and proper load distribution. No limitation as to number or size of compartments—no sacrifice of liquid load to excessive dead weight.



Farrell's steel "safety cradle" bolsters give the tank positive support at all times. Note the space between the strong I-Beam bolster and the springy steel strap, heavily cushioned, which protects tank from road shocks.



Farrell tanks are subjected to severe tests which prove their strength. Here is 2½ tons of proof. Five 100-gallon compartments, filled with water, supporting the weight of six men—a total of more than 5,000 pounds—suspended in midair by a two inch pipe placed across the center manhole and attached to a crane. Farrell tanks stood up under this weight test as they do under every road strain.

OF COURSE, in this year 1932, a truck tank must be good looking for maximum advertising value . . . it must have simplified, efficient fittings for quick loading or unloading, and for safety. But economy of operation—maximum payload and low upkeep cost—are more vital to profits today than ever before. And the fact remains that a truck or trailer tank is no better than its basic construction features.

Why Farrell Flexible Unit Construction Cuts Operating Costs—Increases Profits

Modern flexible Unit Construction (original with Farrell) has proved an engineering achievement—a source of lower upkeep costs and bigger profits.

Farrell Flexible Unit Construction consists of binding (but not welding) together with strong steel bands, as many separate and complete compartment units of any capacity as are required. Each compartment is a complete tank in itself. The shells of compartments are swedged near the edge, giving added strength and providing a groove into which the steel retention bands grip. The steel bands completely encircle the tank except for a small space at the bottom, where the bands are drawn tight by two bolts. The assembled tank is then strapped to a springy steel safety cradle bolster, heavily cushioned, which protects the tank, and gives positive support at all times.

Flexible—With the Strength of Gibraltar

This method of assembly gives the completed tank the strength of Gibraltar, with flexibility to withstand road shocks and twists which cause metal and weld breaks in rigid (welded) tanks.

With a Farrell flexible tank, the torsion of twisting truck frames and the constant succession of road shocks are taken

MODERNIZED

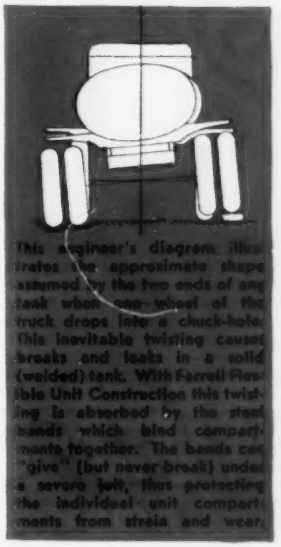
up in the bands which bind the compartments together. Metal crystallization or breaking of welds is eliminated. As each compartment is a separate unit, cross leakage cannot occur because of the double bulkheads.

Tank capacity may be changed by adding compartments or substituting larger or smaller units, as needed. Replacing or repairing a compartment does not require disassembly of the entire tank, but only the compartment to be replaced—a saving of as much as 50% (in time and material) over replacement or repair to rigid tanks.

Long, hard, metal-racking road service has proved the strength, the flexibility and consequent low upkeep cost of Farrell tanks. With all modesty, we boast that once an operator buys a Farrell Flexible Unit tank, he'll never be satisfied with any other kind—and as yet there have been NO exceptions!

Let Farrell, the leading builder of modernized truck and trailer tanks, make your next tank—a "live" tank of Flexible Unit Construction.

Farrell designs — symmetrical and attractive—set the style in modern efficiency and good looks. All Farrell tanks are now sand-blasted to give a smoother, more lustrous paint job. Good looking — yes — and built right!



This engineer's diagram illustrates the approximate shape assumed by the two ends of any tank when one wheel of the truck drops into a chuck-hole. This inevitable twisting causes breaks and leaks in a solid (welded) tank. With Farrell Flexible Unit Construction this twisting is absorbed by the steel bands which bind compartments together. The bands can "give" (but never break) under a severe jolt, thus protecting the individual unit compartments from strain and wear.

Further details are yours for the asking. Write for one of Farrell's New Booklets on Modern Tanks, indicating type of unit you are interested in.

FARRELL MANUFACTURING COMPANY
Joliet, Illinois
CHICAGO — DETROIT — CLEVELAND — PHILADELPHIA — NEW YORK

Farrell

Truck Tanks

Just glance at this cross-section of the inside of drum having TRI-SURE Closure! See how the flange is flush with drum, assuring complete and positive drainage!

With Tri-Sure you know your product will get to your customer exactly as it left the plant, without leakage or tampering. And the buyer gets ALL the product OUT without effort; just tip up the drum! Complete and positive drainage!

Hermetic sealing is assured by Tri-Sure Closure; a "three-in-one" method which is, positively, today's last word in safe, *tight* drums! The makers are pioneers in the field to which they have devoted long experience, engineering skill and research. Their success is recognized by industrial leaders everywhere—at home and abroad.

If interested, write for details. We will ship a complete drumhead, enabling you to inspect the closure, inside and out.

Fully protected by patents and manufactured exclusively by

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